DOCUMENT RESUME

ED 125 623 IR 003 711

AUTHOR Moreland, Ernest F.; Craig, James F.
TITLE Developing a Learning Resource Center; a Guide to Organizing a Learning Resource Center in Health Science Educational Institutions. Monograph 6.
INSTITUTION National Medical Audiovisual Center of the National Library of Medicine, Atlanta, Ga.
SPONS AGENCY National Institutes of Health (DHEW), Bethesda, Md.
PUB DATE Apr 74
NOTE 65p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Administration; Audiovisual Centers; *Audiovisual Programs; Educational Television; *Facility Requirements; Guides; Independent Study; Instructional Materials Centers; *Media Technology; *Medical Education; Medical Libraries; Planning; Program Evaluation; *Resource Centers

ABSTRACT

Guidelines are offered for the planning and implementation of learning resource centers in health science education institutions. The first chapter describes initial planning activities, chapters two and three describe administrative structures and the organization of media equipment and services, chapter four describes the local production of television programs, and chapter five concentrates on the production of independent learning programs. In later chapters, student utilization is discussed, construction considerations are listed, and a model for evaluation is provided. The text is supported by organization charts, illustrations, the proposed design for a center, and samples of forms and documents related to learning center management. (EMH)

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ED125623

developing a learning resource center

A Guide to Organizing a Learning Resource Center in HEALTH SCIENCE EDUCATIONAL INSTITUTIONS

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ATLANTA, GEORGIA 30333

APRIL 1974

IR 003 711

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". . . two roads diverge in a wood, and I—
I took the one less traveled by
And that has made all the difference."

Robert Frost

INTRODUCTION

Mass communication has given teachers a new kind of student, new tools, and a new responsibility in education. These new aspects have created a new type of administrator who is interested in providing adequate instructional facilities and resources, facilitating a more appropriate scheduling of students and teachers, selecting teachers who are skillful in various aspects of instruction, and stimulating and providing faculty in-service education in all phases of instruction.

These and other factors appear to have resulted in a desire by educators to investigate the feasibility of providing one facility where all instructional media—books, publications, 8mm. and 16mm. films, records, tapes, filmstrips, slides, models, television programs (live and taped), programmed materials, etc.—could be produced, stored, and utilized, as well as transmitted where necessary, to all instructional areas. This concept, when implemented, is the Learning Resource center approach to teaching and learning.

This monograph is designed to supply the reader with information relative to the development of a learning resource center in the health sciences. It is intended as an introduction to some of the basic questions confronting individuals who are charged with the responsibility of planning, operating, and evaluating a learning resource center with specific emphasis on the independent learning center.

(Editor's Note: The term "Learning Resource Center" as used here embraces all units and functions commonly included in Biomedical Communications programs.)

"Would you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where—" said Alice,

"Then it doesn't matter which way you go," said the Cat.

"—so long as I get somewhere," Alice added as an explanation.

"Oh, you're sure to do that," said the Cat, "if you walk long enough."

—Lewis Carroll
Alice in Wonderland

CHAPTER 1
PLANNING A LEARNING RESOURCE CENTER

INITIAL PLANNING ACTIVITIES

As illustrated in the above quotation, unless you have a destination in mind prior to your travels, a lot of time and energy may be expended with little or no successful results. Likewise, one should have definite goals in mind prior to the establishment of a learning resource center.

In the initial planning stages for a learning resource center, it is suggested that the following actions be taken:

1. Identify the educational problems and needs of your school.
2. Determine the role and/or functions of the learning resource center in your school.
3. Identify those educational problems and needs which come under the realm of the learning resource center functions.
4. Specify the objectives of the learning resource center which may help the school solve or partially solve the educational needs and problems previously identified.
5. Gather information relative to the objectives and functions previously identified.

   a. Review pertinent literature about learning resource center facilities which are meeting needs similar to those stated in the objectives.

   b. Visit existing facilities which provide a range of services both similar and dissimilar to those contemplated in your school.

   c. Develop a file for relevant sources of information, i.e., equipment manufacturers, dealers, and professional people willing to serve as consultants, etc.

   d. Seek advice from experienced educational and technical personnel relative to problems and solutions involved in developing and operating a learning resource center.

   e. Continually analyze objectives in view of information gathered relative to professional and supportive staff, equipment, software, etc.

   f. Examine or consider space available, construction requirements, environmental conditions desired, i.e., acoustics, light control, climate control.

   g. Determine administrative support by the examination of budget, support personnel, space, etc.

   h. Determine faculty support by the needs and desires of the faculty. One should be reminded that many faculty members will not be aware of the functions which a learning resource center may provide. This lack of information should provide valuable information relative to faculty needs such as workshops, in-service programs, etc.

6. Develop plans such as drawings of space utilization, staff-line flow charts, job descriptions, functions, budget requests, equipment needs, evaluation methodology, etc. This list is not intended to be exhaustive; however, many aspects must be

considered and planned before one should initiate an active learning resource center.

7. Present plans to the top administrative personnel for agreement and/or revisions.
8. Initiate plans as approved by the administrator.

As one develops and operates a learning center there are constant day-to-day operational changes which must occur. This does not mean, however, that the overall objectives should be discontinued nor does it mean that the objectives should not be accomplished. Rather, changes and adaptations in the day-to-day operations may be necessary to ensure meeting the objectives of the learning resource center.

RATIONALE FOR A LEARNING RESOURCE CENTER

Any rationale for a learning resource center must be based upon sound assumptions. Here are some important assumptions which seem to be sufficient justification.

First, in order to help students assimilate the facts, concepts, and generalizations necessary for success in their educational career and in later life, a wide variety of instructional media must be available and utilized. The selection of media must be based upon the unique contribution which each medium can make in specific learning situations. Of course, personnel who are willing and qualified to select appropriate media must be part of the instructional team.

Second, an effective method must be devised to make instructional media easily accessible for student learning and faculty utilization. Easy access to media is necessary if learning and teaching are to be efficient in terms of time and expense, and effective in accomplishing prescribed goals and objectives.

Third, students, teachers, and administrators will require direction and assistance in:

a. locating appropriate instructional materials;
b. producing appropriate instructional materials for independent, small-group and large-group learning;
c. integrating personnel, materials, and machines into a meaningful learning system;
d. effectively utilizing instructional media in independent, small-group, large-group, extracurricular, and public relations activities;
e. evaluating the effectiveness of various types of media and effectiveness of various approaches in the teacher/learner environment.

Fourth, facilities, materials, and equipment must be provided for independent learning activities so more individualized instruction can become a reality.

There is no longer a doubt that instructional media are efficient, self-contained tools of instruction which can be made part of a total teacher/learner experience. There are media which will enable a student to undertake various ranges in learning by himself. In other words, programs can be used under suitable conditions for enrichment or remedial study, but this is secondary to the goals of self-instructional media. The hope has always been that such self-instructional programs would be the magic key to the door of individualized instruction—that they will liberate the student from the lockstep of the heterogeneous class; let him move forward at his own pace; release teachers from much of the routine of exposition and drill and let them concentrate on smoothing and enriching the progress of the individual students.

In spite of heroic experiments in multiple-track systems, and ungraded schools, it is still standard practice for large groups of students to move forward at the same pace, cover much the same material, and reach the same standards for promotion. The pace is appropriate to the average. Those who could move faster lose interest and waste time; those who should move more slowly fall behind and lose interest and fail.

Fifth, increasing emphasis upon innovations in curriculum, teaching methods, staffing, resources, and instructional organizations is creating a need for learning resource centers.

Sixth, changing instructional patterns where large-group, seminar, and individualized instruction are being utilized necessitate the optimum use of instructional media designed for each of these three types of instruction.

We continue to be challenged with the problems of meeting educational needs by grouping, grading, ungrading, cutting curricula, lengthening curricula, establishing conjoint courses, etc., while retaining traditional modes of instruction. Is there another approach?

Seventh, student enrollment in schools of dentistry, medicine, nursing, and other allied health professional schools is increasing. At the same time, an awareness has developed, especially among students, concerning the uniqueness of the individual. Consequently, a demand for more personalized attention has arisen. Students no longer seem to be content to sit in a mob and listen to a tiny figure at the front of the class as the lecturer drones out the presentation for the day. To meet student demands, schools of the health sciences need to be taking steps to increase the utilization of educational technology.

Many educators in these schools realize that personalized attention for each student can only be provided by freeing the instructor from the routine tasks of preparing lectures on material which remains the same year after year. This freedom might then allow the educator to spend the time gained with small groups or individual students. Since new personnel are rarely available to take over these routine educational tasks, the schools might accomplish this task through the use of educational technology.

Eighth, the consolidation of software and hardware should be accomplished in schools. Although beneficial to student and teacher, educational technology has placed considerable strain and stress on the traditional school structure and personnel. Instructional media budgets have been particularly hard hit by the increasing demands for instructional design and local preparation of instructional media. The trend has been for most schools and departments within schools to develop their own collection of instructional materials. While providing maximum access to the materials, this tendency toward "private collections" results in expensive duplication in many areas where such duplication is not necessary. This is especially true when each department begins to acquire production hardware and playback equipment.

ROLE OF LEARNING RESOURCE CENTER

In view of the aforementioned assumptions and problems, several critical questions can be raised, namely:

1. Can the valid purposes of health education be attained economically and effectively if each school and/or each department in each school develops its own educational technology division?
2. Can the combination and sharing of media and personnel result in more desirable flexibility and quality of instruction?
3. Can a single campus or medical center use available instructional resources more effective and efficiently than presently?
4. Do changing conditions in our society emphasize the need to speed up the process of evolution in health education, and, if so, do these changes relate to uses of instructional media?

If the response to these questions is affirmative, it appears that some centralization of educational resources may be necessary in some schools. To accomplish this, there may be a need to establish a learning resource center on a campus-wide basis. Additionally, each school may need a learning resource center specifically tailored to the school's needs. This center, whether campus-wide or for a specific school, should have as its objectives the following:

1. To assist faculty members in improving their instructional materials, and, at the same time, to keep the unit cost of instruction reasonable constant.
2. To involve the faculty in educational research projects, including the application of new media to instruction.
3. To assist the administration in media selection, preparation, and utilization.
4. To increase the sharing of production equipment, facilities, and instructional media between departments, schools, other campuses of the university, and institutions in the area.

5. To develop more precise units and methods of measurement of pragmatic approaches to the solution of instructional problems.
6. To maintain and encourage innovations by faculty members in the development of instructional media within various disciplines.
7. To provide efficient study areas for students and instructors.

ROLE OF MEDIA

The role of educational media seems to reflect two primary functions in an educational environment. The *first function* is to *aid* the teacher in the presentation of information which will help increase the student's breadth and depth of learning. Films, programmed books, slides, television programs, and other media which are sometimes used as supplementary aids by the teacher would fit this category.

The *second function* of educational media is to *present* the information, direct student activities, provide reinforcement, test, and in a sense "teach" the student without direct contact with the instructor. It is an established fact that slide/tapes, films, programmed books, computer-assisted instruction, etc., can, by themselves, present information to the student and thereby enhance learning.

Only recently have we begun to discover the philosophical framework or the modes of application which seem to make the extensive use of educational technology appropriate to health education. This framework has been constructed through painstaking research and pragmatic application and has been widely reported in professional literature. There must now be generated within the health science environment an increasing desire to extend this capability.

There is a need to have a variety of media available for students. Ideally, each student should have his own personal tract – the most appropriate book, film, etc. coupled with the "new" role of the teacher as an educational diagnostician – not just a transmitter of data; not a mechanized classroom, but an educational system capable of bringing the best, the most real, and the widest range of experience to the student.

Why independent instruction? Are there differences in learners? Learning is individual, private, and personal. It may take place in groups of various sizes, but no matter where the learner is situated, the changes in behavior which we call learning are painfully or pleasantly private and personal. Learning is something everyone does for himself, building on his own views, understanding, and needs at a rate determined by his abilities and motivations. Therefore, in order to most effectively meet the needs of students, media should be available that permit the student to choose from among alternative modes of instruction.

Learners are sometimes divided into the following three categories:

1. Symbol learner – the person who can read and learn the information.
2. Audiovisual learner – the student who needs to hear, read, and see in order to learn efficiently.
3. Audiovisual/tactual learner – the student who must practice or simulate the experiments after hearing, reading, and seeing.

The different types of learners present a challenge to educators who desire to be effective instructors. To meet the needs of all, instructional materials must be available in a variety of forms: film, television, books, recordings, models, slides, programmed learning, data banks, etc.

Software for the learning resource center should be determined by the type of learners and the type of learning to be undertaken. For example, for some students, information may best be presented by printed matter. That is, a laboratory procedure may best be presented with a step-by-step manual, etc. Some information may require color and motion, while other material may be effectively presented with slides and tapes. Therefore, one must evaluate the learner, the material to be learned, and where the material may be utilized before the type of software may be determined.

Could the same mode of presentation or instructional material be utilized on all

students in the following teaching situations?

1. Teach factual information,
2. Teach psychomotor skills,
3. Teach cognitive skills, and
4. Change behavior.

Probably, one would need a variety of media such as:

audio tapes	books
audio/slides	filmstrip/books
programmed texts	television
motion pictures	

Each of the above-mentioned materials has an important role to play in the teaching/learning environment.

LEARNING RESOURCE CENTER IMPLICATIONS

As learning resource centers are developed and utilized in health science institutions, new problems will arise and new roles for members of the academic community will evolve.

For Teachers:

The responsibility of the students is to learn, and the responsibility of the teachers is to make learning possible and meaningful as well as efficient and effective. It is a simple fact that some students find learning easier than others and that some students find some subjects easier to learn than other subjects. Human variability demands alternatives. The selection of alternatives demands diagnosis of the individual and the availability of variable alternatives in instruction from which to prescribe. Diagnosis and prescription are teaching functions and must be facilitated and demanded. Teachers must be capable of making expert decisions of "when and what to use, with whom, for what purpose, and with what effect". The learning resource center will provide the teacher a continuing opportunity to design, use, evaluate, and redesign teaching methods and media.

This new role will free teachers and students from a plethora of routine lecture-type presentations and thus increase student/teacher contact, establishing a one-to-one relationship. Thereby, teachers serve as catalysts in the learning process, encouraging the learner to move closer and more rapidly toward his maximum potential in performance as measured by previously defined objectives.

No book, machine, or slide/tape can, alone, counsel, assist, praise, or at times, smooth the hurt feelings of the student. The personal presence of responsive teachers will still be needed in the school.

For Students:

The emphasis of the learning resource center concept is on the student's learning rather than on the teacher's teaching. The student has an opportunity to study the material when he desires; he does not have to depend on specific times or regularly designated areas for learning. The ready availability of the material facilitates effective study. The teacher acts as diagnostician, prescriber, and resource person to supply the information that is not provided by the media. His guidance is still extremely important, but his role is more personal and less mechanical than previously. Additionally, this approach may allow educationally disadvantaged students more time to master subject matter that might otherwise be too demanding and permit students to repeat sections or units, if necessary.

For Administrators:

New problems in administration will result. As the learning resource center becomes

more deeply involved in the curriculum, administrators will have to make a commitment to this phase of instruction – not only in theory, but in practice. This commitment can best be shown by overt action in line items of the budget for salaries and other costs of producing, purchasing, and utilizing media.

Administrators will also need to provide faculty incentives for innovation in teaching and media development. Such activities should become major considerations for promotions, advancements, salary increments, and other awards.

As independent learning becomes more commonplace, new problems in student scheduling, time sharing between departments, faculty scheduling, course offerings, etc., will arise. These problems require a conscious effort of coordination and cooperation with and among the total faculty in contributing to and utilizing the learning resource center.

To make the learning resource center concept work, administrators must allow for additional types of personnel to support the faculty.

There will be a need for instructional designers who can work with faculty members to aid in the interplay between theory, research and application. For example, the instructional designer would analyze the subject to be taught in terms of the nature of the material and the kind of response the student might be expected to make–memorizing, problem solving, conceptualizing, psychomotor activity, etc. He would also focus on the characteristics of the student to be taught and whether the instruction involved new learning, re-learning, or interaction of learning. In other words, he would assist the teacher in the following:

1. analyzing the characteristics of subject matter competence;
2. diagnosing pre-instructional behavior;
3. carrying-out instructional processes; and,
4. measuring learning outcomes.

It seems that the time has come for health educators to apply everything known about communications and learning to the problems of instruction in the health sciences. A decision to make this step will require a massive infusion of technological capital and personnel into the system as well as a program of research and development.

CHAPTER 2
ORGANIZATION AND SERVICES OF THE LEARNING RESOURCE CENTER

The learning resource center should be composed of sufficient professional, technical, and clerical personnel to accomplish the mission of the center. The director of the center should report directly to the top administrator of the school, schools, or campus, as the case may be (Fig. 1).

The director of the learning resource center has two main functions: leadership and management. In order to successfully perform these two functions, the director must be competent in educational technology and be an educator. In addition, the level of the degree held by the director should be no less than the degree held by other faculty members.

The chief administrative officer in charge of a learning resource center is usually given the title of Director. Only through the appointment of a professionally trained director can activities and services be properly delivered and coordinated. The qualifications of the director should include:

- successful teaching experience—the wider the range of experience, the better.
- special training in educational technology. This includes both theoretical and practical aspects so there is familiarity with selection, utilization, and production of all educational media.
- knowledge of curriculum construction. This, of course, includes development, organization, and evaluation aspects.
- organizational and administrative ability.
- a pleasing personality. This aspect must not be overlooked. The success of a program may hinge on this factor.

The responsibilities of the Director are as follows:

- overall administrative responsibility for planning, organizing, directing, and coordinating personnel and activities associated with the learning resource center.
- analyze educational needs of the institution formulating a plan for resolving these needs through the use of the learning resource center, when applicable.
- establish and maintain departmental policies and procedures.
- analyze fiscal requirements and prepare budget; monitor expenditures in accordance with budget allocations.
- prepare reports regarding center progress toward objectives.
- provide consultation for administration, faculty, and staff members seeking information regarding the integration of media into the curriculum.

In Figure 1 there are four main divisions of the learning resource center. These four divisions are the support areas which provide the technical services for students, faculty, and administrators. Educational consultations and other professional activities are handled by professionals in the director's office.

Learning Resource Services:

Under the learning resource center, there need to be two distinct services: technical and educational (Fig. 2).

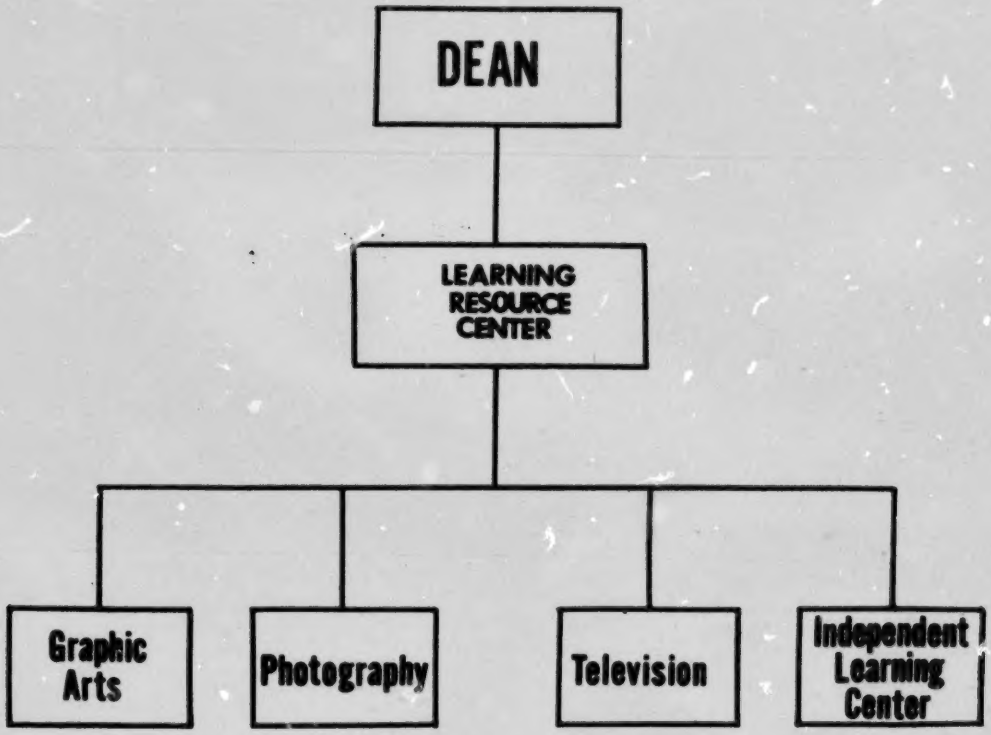

Figure 1 — Line--Staff Chart For a Learning Resource Center

Technical Services:

Technical services would perform those functions which have traditionally been labeled "audiovisual." This type service would be one of instructional support providing for efficient and economic selection, production, and utilization of both software and hardware. The technical staff would complement the production activities in developing learning materials. In addition, several subdivisions would work with individual faculty members and departments in developing such products as clinical record photography, textbook illustrations, transparencies for classroom use, and convention exhibits. Incorporated under this area are:

1. Television – responsible for the production and transmission of television programs for instruction.
2. Independent Learning Center – responsible for the systematic collection and acquisition of media–its classification, storage, and retrieval; providing technical and mechanical assistance. In addition, it is a resource center for educational hardware, e.g., 16 mm. projectors, tape recorders, overhead projectors, projection screens. This would not be a primary source for such hardware, but would serve to back up the individual school or department when the local equipment is broken down.
3. Technical support – responsible for design, installation, maintenance, operation, and expansion of all electronic components of learning resource facilities throughout the campus and/or in each school, e.g., transmitters, TV studios, and audiovisual equipment.
4. Motion picture, still photography – responsible for the production of motion and still pictures for all types of instruction, as well as clinical record photography.

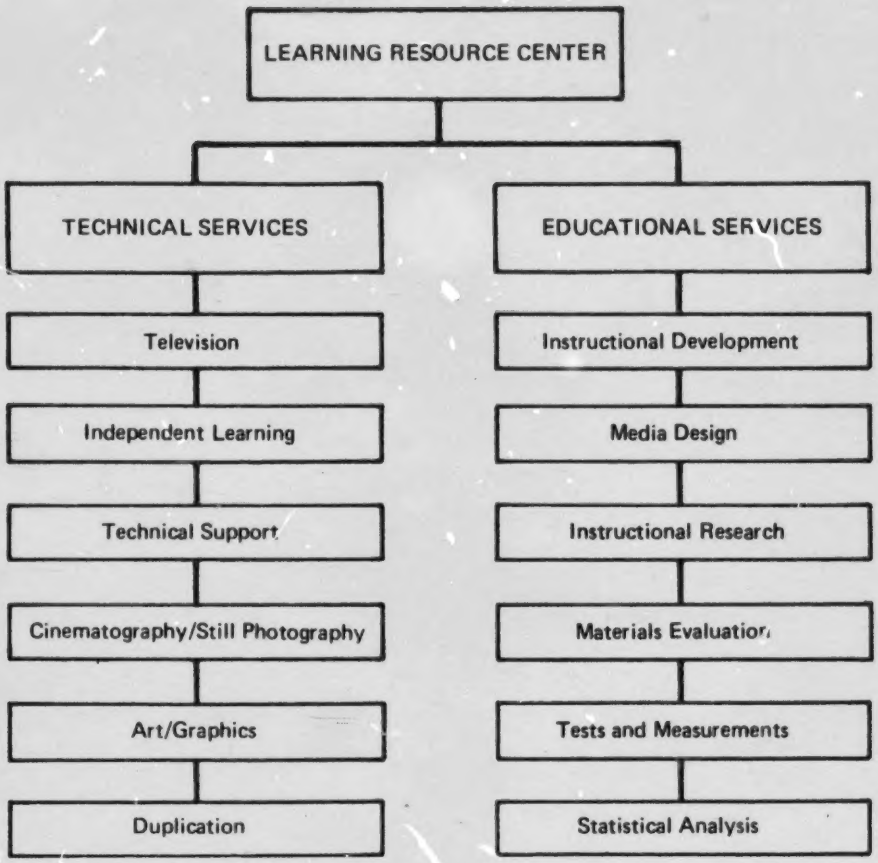

Figure 2 — Learning Resource Center Services

5. Graphic communication – responsible for the production and reproduction of graphic, photographic, and other forms of artistic visual representations through consultation, design, layout, and the production of finished art for TV and direct instruction.
6. Duplication services – responsible for the reproduction of instructional materials in quantity by means of mimeograph and offset printing processes, e.g., programmed instruction booklets, laboratory guides.

Educational Services:

This area would be instrumental in the application of theoretical and pragmatic approaches to instruction in the professional school. Consultants would work with faculty to design learning materials which link with other materials used by the faculty members for a course or for a curriculum so that an instructional system—rather than a collection of instructional materials—results. Learning materials would be designed which incorporate known principles of learning and which are based upon explicit educational objectives. System design also involves the comprehensive analysis of human and non-human factors and their interrelations in teaching. For example, the choice of a medium for an instructional presentation may be made after considering the characteristics and requirements of the learner, the characteristics and requirements of the instructional message, and the characteristics and economics of the various media. Types

of material which this subdivision may develop include 2 x 2 slides, coordinated tape/slide presentations, audiotapes, videotapes, print materials, programmed instruction, motion pictures, overhead transparencies, and computer-assisted instruction.

Instructional Development would also aid faculty members in the experimental planning and designing of media, devices, and techniques for implementing instructional strategies. Consultants from this area would also assist faculty members constructing proposals for research grants.

If the learning materials developed by a school are to be utilized in lieu of other forms of instruction, some means of evaluating the effectiveness of such materials is necessary. The development of tests, written and otherwise, which truly measure how effectively the objectives for a learning unit have been achieved requires the assistance of specialists in tests and measurements. Professors should be assisted in the construction and evaluation of tests which measure the effectiveness or appropriateness of instruction and/or testing procedures. Statistical experts should be available for consultation on data gathering and data analysis for any faculty research projects. Methods of evaluating the performance of professional students need to be developed and evaluated. This may be accomplished by learning specialists working with clinical instructors.

Effective teaching and learning require many and varied teaching materials and equipment: books, periodicals, films, filmstrips, slides, tapes, recordings, microfilms, television programs, etc. The modern school must be organized to provide these media which are easily available to instructors and students. The facilities must be planned not only to make these tools available, but to efficiently store, distribute, service, and provide student and faculty utilization of them. The learning resource center should be the central focus for the efficient handling of these materials and equipment.

CHAPTER 3
MEDIA ORGANIZATION IN THE LEARNING RESOURCE CENTER

In order to provide appropriate instructional media in schools of the health sciences and make the resources for teaching and learning easily accessible, one must develop a learning resource center capable of performing the following three functions:

function one–

provide instructional materials of good quality–commercially and locally produced;

function two–

facilitate optimum use of these materials by instructors and students to support the learning process; and

function three–

provide an efficient organization of materials and equipment adequate for their display.

Understanding the basic characteristics of independent learning programs is a necessary prerequisite to achieving all three of these functions.

CHARACTERISTICS OF INDEPENDENT LEARNING PROGRAMS

There is an increasing emphasis being placed on the local production of independent learning programs. An effort should be made by all producers of independent learning materials to incorporate several basic conditions in their programs. Each program should:

- provide those conditions necessary for the individualization of instruction.
- rely heavily on the use of learning resources which can be student operated, permitting the student to obtain information and instruction without the constant presence of the instructor.
- focus on specific objectives, learnable ideas, skills, and techniques.
- minimize the difficulty involved for the professor to change or modify instructional objectives and content in order to make the instructional program relevant to changes in society and in the health discipline itself.
- provide a high degree of individualization so that each student may progress at his own rate and the professor is freed from repetitive class presentations.

These conditions, obviously, also apply to programs composed mainly of purchased materials.

SELECTION OF MATERIALS

In order to satisfy the need for quality materials, one must first establish certain guidelines for the selection of materials. These guidelines may include:

1. The learning resource center should establish a selection policy which is endorsed by the school administrator and department heads.

2. Media selected should meet the objectives of the various curricular areas and provide for the diverse learning skills and abilities of students.

3. The selection of instructional materials should involve the media director and selected faculty members from the department or subject matter area. Only those materials which meet technical and subject-matter standards should be acquired. There are numerous media evaluation forms. The one in figure 3 is a simple, succinct form which will obtain the pertinent information and not be too difficult and time-consuming for evaluators.

4. Final selection of the instructional materials for the learning resource center should rest with the director of the center.

5. Sufficient copies of the materials should be acquired and made available to meet the needs of the users. The number of copies will vary depending on the manner of use and the importance of the media in the curriculum. Some guidelines are:

a. in a technique course where each student proceeds at his own rate, there may be a need to have one copy for each student;
b. where programs are available in units of instruction and each unit can be viewed in any sequence, there may be a need for only ten copies each. For example, suppose there are ten titles in a unit composed of slide/tape programs. If each title may be viewed independently, 100 students could be accommodated at one time (10 titles x 10 copies=100 students).
c. another factor which will determine the number of copies will be the number of playback units. If only five playback units are available there would not be a need for more than five copies of a given title.

FACILITATING USE OF MATERIALS

Function two, optimum use of instructional materials, may be facilitated in many ways:

1. There should be sufficient, competent, empathetic, and resourceful center staff available to assist the students, instructors and administration (Fig. 4). If the number and competency of the center personnel are sub-standard, the use of the center will suffer.

2. Equipment and materials in sufficient quantities must be available to assure maximum accessibility and utilization of materials by all school personnel.

3. The design and arrangement of facilities must be adequate. Equally important, the convenience and comfort of the users is imperative. (Fig. 6 thru 18).

4. The center must be open at all times of the school day and at other times as determined by user needs. Before and after school hours, vacations, and Saturdays must be considered. The extension of hours is dependent upon such factors as location of the school, demand by students and faculty, budgetary support, staffing, etc.

5. Circulation of materials and equipment throughout the school should be possible. Only in exceptional cases should materials not be permitted to circulate throughout the building. There may be a need to establish satellite learning centers in departments where there is a need for interaction by the faculty and students. These satellite centers could be temporary (in a given week or semester), and may serve a real need.

6. Loan of materials and equipment for use outside the building may present a logistics problem as well as a security problem. To remove a videocassette player, monitor and tapes would probably not be recommended. Likewise, the loan of tape recorders and slide projectors might deplete the resources of the learning resource center. Some materials, such as programmed books, filmstrips, slide/tapes, etc. may easily be made in sufficient copies to be loaned out. The purchase of equipment by the student could solve the equipment loan problem for some inexpensive items.

7. Students should not be scheduled for visits to the center. If they are required to view media, scheduled time should be released by departments for independent study. The student then must determine when he desires to learn the information required.

Figure 3

MEDIA EVALUATION FORM

TITLE _____ DATE _____

MEDIUM _____ PRODUCER _____ DATE _____

PHYSICAL DESCRIPTION: running time _____ sound/silent

# of slides _____ reel/cassette

# of pages _____ color/b & w

other _____

CONTENT:

I. Is the content:

	YES	NO
a. up to date?	____	____
b. accurate?	____	____
c. free from bias?	____	____
d. relevant to *objectives*?	____	____
e. presented in a logical, organized *sequence*?	____	____

II. Appropriateness of Content:

Recommended Audience(s) (check)				
Areas	MD	DDS	NURS	AL.H.
Basic Sciences				
Clinical Sciences				
Specialty				
Continuing Education				
General Information				
Other Professional Health Audiences				

TECHNICAL

I. Visual

	GOOD	POOR
a. Focus on point of interest	____	____
b. realistic colors	____	____
c. contrast	____	____
d. legibility	____	____
e. info. per visual	____	____
f. editing	____	____

II. Sound

	GOOD	POOR
a. Narration	____	____
b. Volume	____	____
c. Fidelity	____	____

EDUCATIONAL DESIGN

	YES	NO
Are objectives stated?	____	____
Are instructional materials relevant to objectives?	____	____
Are teaching methods appropriate to objectives?	____	____
Is there a test instrument to determine effectiveness of medium?	____	____

Figure 4. A check out system makes instructional materials readily available to students, staff and faculty upon request.

Function three, organization of materials and provision of equipment, is imperative so that the users of the center can obtain the appropriate material and display it quickly and easily.

Materials Organization

The arrangement of all instructional materials should follow some classification scheme. The scheme may be one developed for a particular center. The important criteria are: that the material is easily located, accessible, and easily used. It is advisable to have the material catalogued with title, department, media, and access number. In addition, a catalogue with important information on each medium should be available for faculty and students. (Fig. 5 is such an example.)

DISPLAY SYSTEMS

The kind and amount of equipment obtained and the way it is made available in the learning center is a matter of great importance to the success of the independent learning center endeavor and the entire learning resource center program.

Unfortunately, display systems are often purchased without serious consideration being given to the role that media will play in the curriculum; without determining the software relevant and available for the curriculum; and without an investigation into the dependability of the hardware and the producers of the hardware.

An important factor in determining the type of display hardware that should be purchased is: do you have enough software to justify the hardware? Certainly there is sufficient software in most health areas to justify 16mm, super 8mm, filmstrip and slide projectors plus synchronized slide/tape machines, cassette television playback systems and so on. (Figs. 6 thru 18).

One should attempt to standardize equipment as much as possible by purchasing the product of only one manufacturer in each category of equipment necessary for the playback of software. Thus, the learning center would have only one make of tape

Access Number_____

Title:_____

Medium:_____

Producer:_____

Date (year):_____

Physical Description (complete where applicable):

running time	_____	CIRCLE
# of slides	_____	sound/silent
# of pages	_____	reel/cassette
speed	_____	color/black & white
Other	_____	

Other material included in package or which should be used with this program:_____

Special machine needed:_____

_____

Author:_____

Department:_____

Series Title:_____

Brief Description of Content:_____

_____

Audience:_____

List any histological slides or other pertinent specific pieces of information included in this program:

Objectives of program:

****

Tracings:

Figure 5

recorder, 8 mm. projector, etc. Some of the advantages of standardization are:

1. It is easier to teach students and teachers to properly operate one type;
2. Spare parts may be kept on hand by a technician and repairs made quickly;
3. Large purchases may result in savings from bids;
4. There is less clerical and technical work involved in maintaining inventory of spare parts, storing, etc.
5. There will be fewer operational failures because operators are familiar with the equipment.

If one is considering the purchase of equipment about which he has no knowledge and there is not a reputable person (colleague, not salesman) from whom a recommendation can be secured, caution should be exercised in selecting such equipment. In this situation, the manufacturer should be requested to lend one unit of the equipment for a test period of at least one week; preferably, a month. If the manufacturer is unwilling to do so, then the equipment probably should not be purchased.

Some criteria to consider when selecting equipment are:

1. ease of operation
2. quality of performance
3. ease of maintenance
4. ease of repair
5. cost
6. attractive design
7. local service available
8. reputation of manufacturer
9. ruggedness and design
10. portability.

EQUIPMENT GUIDELINES

The items in the following list indicate the quantities needed for a functioning learning resource center program. Equipment recommendations are based on the premise that software is available.

The basic recommendations provide minimal support while the advanced recommendations present quantities that will be needed in those schools with innovative instructional approaches such as individualization of instruction and independent study. It is recognized that in certain types of innovative programs even the advanced level will need to be exceeded.

	Basic	Advanced
16 mm. sound projector	1 per teaching station	1 per teaching station+ 1 in center
8 mm. projector	1 per teaching station 1 for every 10 carrels	1 per teaching station 1 for each 5 carrels 1 in center
2 x 2 slide projectors	1 per teaching station 1 for every other carrel	1 per teaching station 1 per 50 instructors 1 per carrel
filmstrip viewer	1 per teaching station 1 for every 10 carrels	1 per teaching station 1 for every 5 carrels 1 per center
10 x 10 overhead	1 per teaching station	1 per teaching station 1 per center
opaque projector	1 per school	1 per school

	Basic	Advanced
filmstrip projector	1 per teaching station	1 per teaching station 1 per center
TV receiver (minimum 23")	1 per 24 viewers in classrooms (see videocassette playback)	1 per 20 viewers in classrooms (see videocassette playback)
microprojector	1 per school	1 per teaching station where applicable
record player	1 per station, if control source is not available or transfer to tape is not available	1 per station 1 in center
tape recorder	1 per teaching station 1 for every other carrel	1 per teaching station 1 per 50 instructors 1 per carrel
earphones	1 per carrel	1 per carrel
listening stations	1 with 3 sets of earphones per 2 carrels	1 with 3 sets of earphones for each carrel
projection carts	1 per teaching station	1 per teaching station +5
projection screens	1 permanently mounted per classroom	1 permanently mounted per classroom 3 portable 70 x 70" screens with keystone eliminator
closed-circuit television	provisions for teaching stations/at least 2 channels should be available/receive broadcast programs duplicate videotapes duplicate videocassettes	provisions for teaching stations; independent study carrels at least 5 channels should be available receive broadcast programs duplicate videotapes cassette duplicator
3¼ x 4 projectors	if still used, 1 per school	if still used, 2 per school
videocassette recorder	1 per school	1 per school 1 for learning resource center
videocassette playback	1 per school; a ratio of 1:10 carrels	2 per school; a ratio of 1:5 carrels
microscopes (if used in learning center)	1 for every 20 carrels	1 for every 10 carrels
stereo reel-to-reel tape recorder	1 per school	1 per school 1 per center

LOCAL PRODUCTION EQUIPMENT

binding and punching machine	paper cutters	equipped television facilities
dry mounting machine	primary typewriter	
mechanical lettering sets	equipped dark room	equipped photography facilities
10 x 10 transparency processes	equipped graphics room	

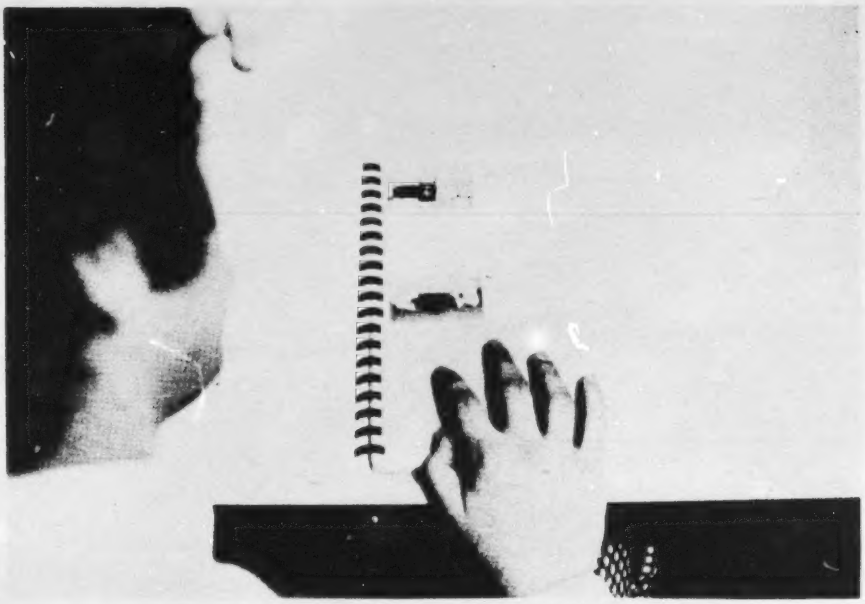

Figure 6. Sequential presentations of technique courses for use in laboratories or to be used in the Independent Learning Center.
A programmed text approach provides an additional means of self-instruction.

Figure 7. 8mm. sound films in basic science, pre-clinical and clinical areas.

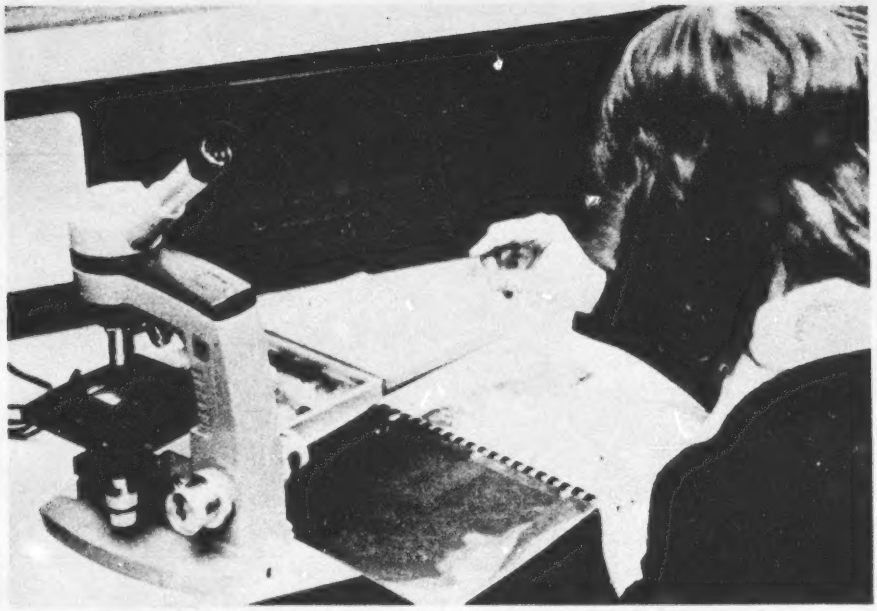

Figure 8. Some programs incorporate a multi-media approach using the microscope, glass slides, color prints, and text.

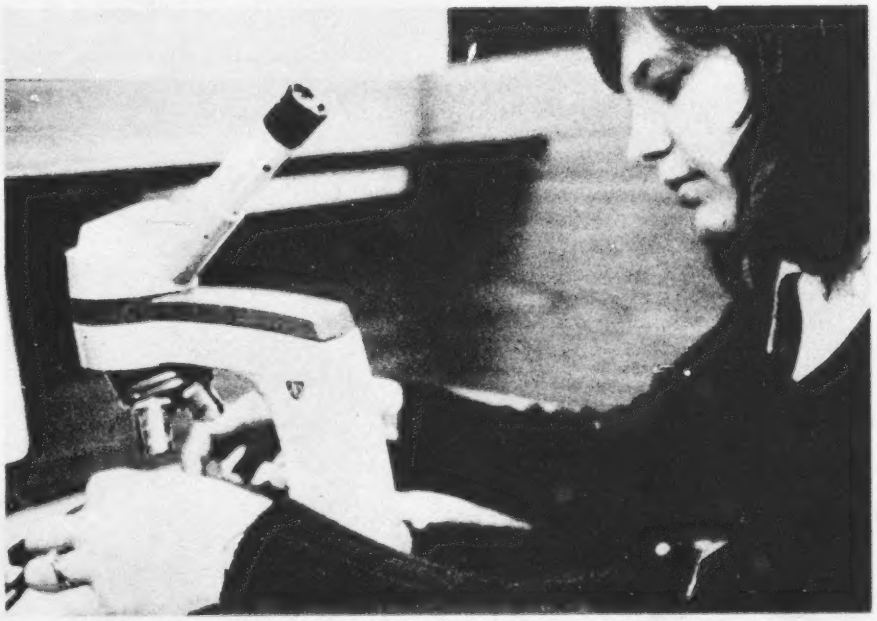

Figure 9. Microscopic slides may be integrated into an independent study program.

Figure 10. 8 mm. silent films may not incorporate the use of a workbook.

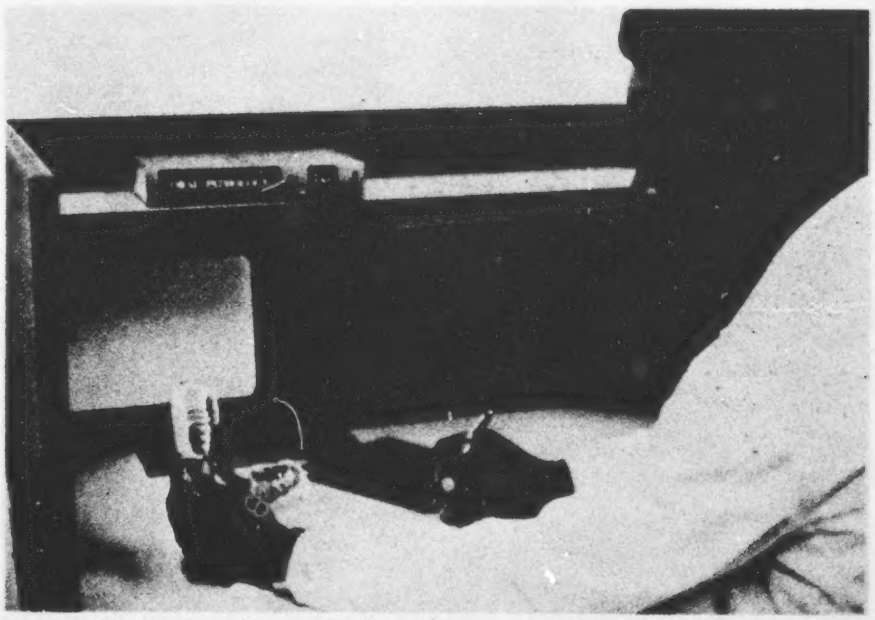

Figure 11. Models and x-rayc serve as important media in treatment planning.

Figure 12. Records and filmstrips.

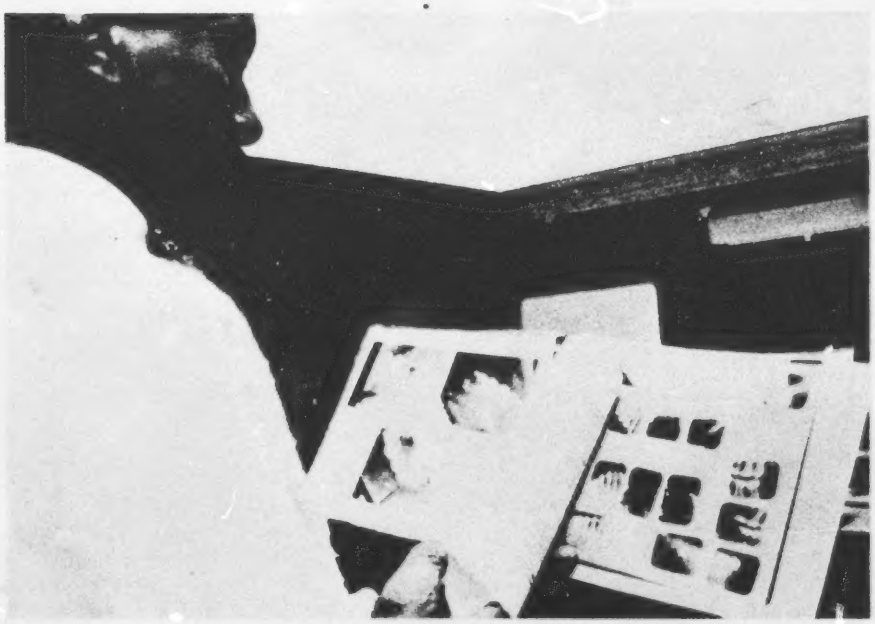

Figure13. Pre-clinical case presentations with clinical conditions, history, x-rays, and student treatment plan to be worked up.
Post-treatment case presentations with clinical treatment, history, x-rays, and student critique to be completed by students.

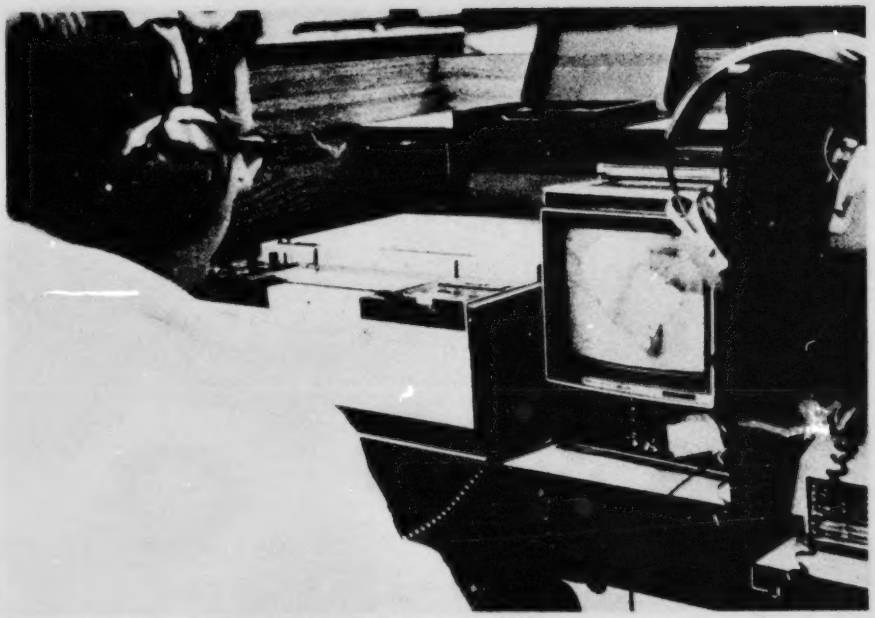

Figure 14. Different types of media may be used in adjoining carrel. The use of videocassettes places televised instruction at the fingertips of the learner.

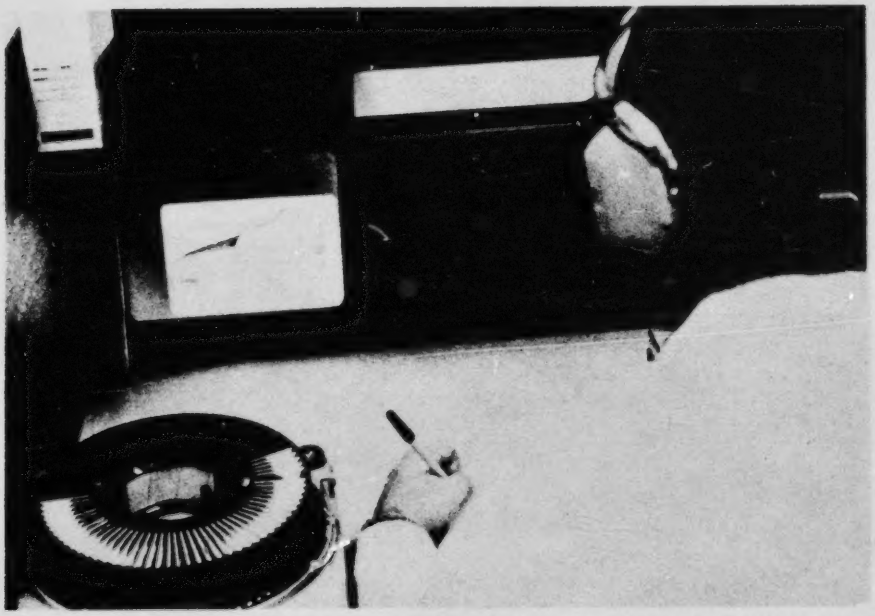

Figure 15. Synchronized slide/tape programs are relatively inexpensive to produce, and may be easily revised and up-dated.

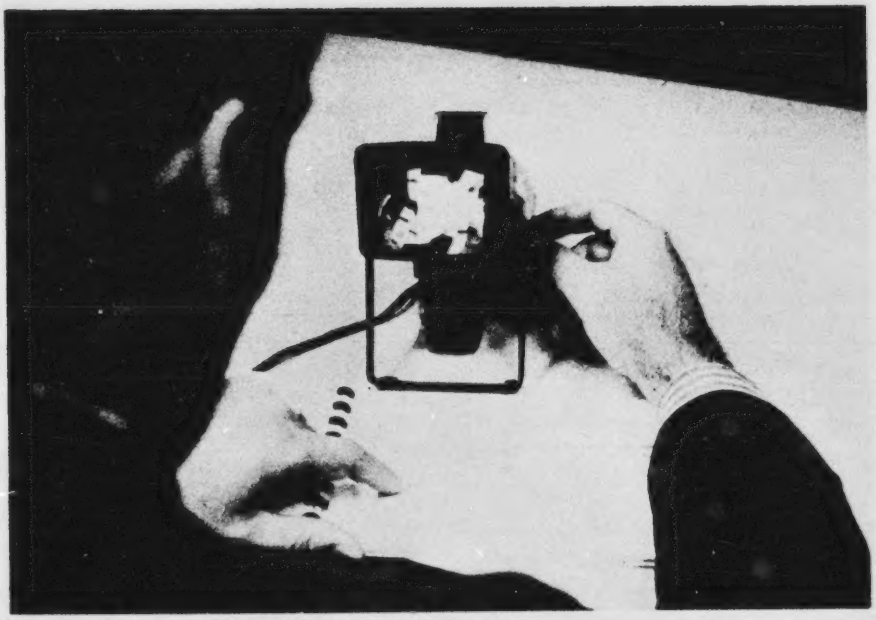

Figure 16. Using a programmed book with filmstrip.

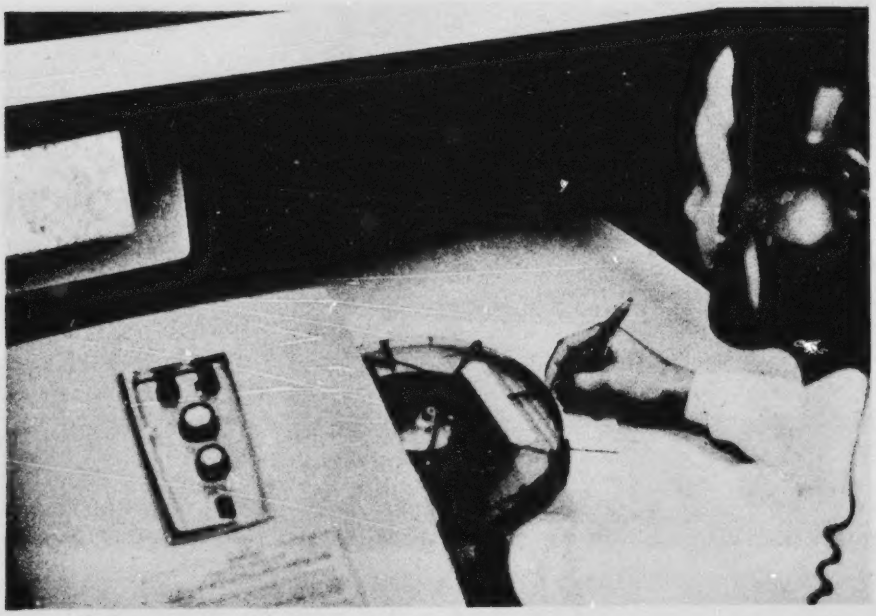

Figure 17. 8mm. sound projector.

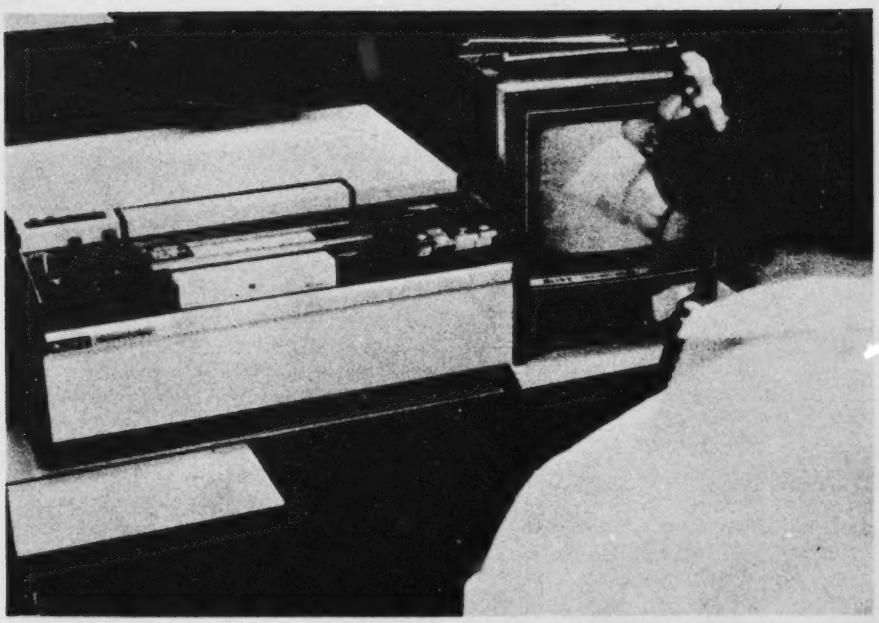

Figure 18. Videocassette playback for independent viewing. Note listening center on carrel shelf for additional earphones to permit group viewing.

CHAPTER 4
LOCAL PRODUCTION RESOURCES IN A LEARNING RESOURCE CENTER

Every learning resource center should have a program for the local production of instructional media. The main functions for the local production of instructional materials are to provide professional assistance to teachers, administrators, and students in the local preparation of educational media. Specific activities would be assisting in the

1. planning, layout, and development of all types of instructional materials, visual material preparation for slides, TV, books, films, publications, displays, models, etc.
2. preparation of original audio and video materials. Aid in securing the proper number of duplicates, if needed.
3. photographing all media to become a part of the teaching program.
4. producing materials for use by teachers, administrators, and students in adjunctive programs of the school. For example, provide the administrative staff media for speeches, community services, public relations.

To accomplish the above functions there is a need to have three areas of production, namely: illustration/graphic arts, photography, and television.

These areas will be treated individually in terms of basic facility design, personnel (including competencies and functions), and charges for services rendered.

Basic Facility Design

The basic local production facilities should be designed so areas are easily accessible to one another (Fig. 38, A).

The office of the individual(s) responsible for instructional design and development should be centrally located to facilitate supervision of the various production areas. Furthermore, this central location saves time for the production staff who may need to confer with the instructional designer concerning production of the instructional materials.

PERSONNEL REQUIREMENTS

Instructional Design

The specific work to be performed by the instructional designer may include the following:

- serve in the capacity of educational consultant in the design and development of instructional materials.
- coordinate and supervise all graphic, photographic, and televised activities.
- establish and maintain standards for quality production of instructional materials.
- conduct workshops and in-service training programs for faculty and staff members.
- initiate and maintain records reflecting operation of facility, i.e., material usage, equipment needs.
- assist director in administrative decisions regarding duties and responsibilities of personnel and overall policies and procedures for the learning resource center.

Illustration/Graphic Arts

The most critical area in local production is that of illustration/graphic arts. The illustrator is responsible for providing art materials in various forms for all instructional situations. Duties of illustrators are numerous depending on the type of operation and demands made by the faculty and administration. In most teaching situations, graphic artists are able to perform all needed art work. Medical illustrators may be needed for complex drawings which are not available elsewhere or for sophisticated illustrations for journals, books, etc.

A chief artist and two graphic artists are the personnel that might be needed in an active learning resource center that provides visual media in every aspect of the curriculum and extra-curricular activities.

The basic competence and functions required for individuals in this area are:

Artist (supervisor)

- supervise daily functions of the illustration and graphic arts facility.
- maintain a file of original art and keep an inventory of art supplies and equipment, reordering as required.
- prepare complex medical and anthropological illustrations, drawings, and diagrams for self-instructional programs, publications, exhibits, and research activities.
- prepare pen and ink, wash, crayon, water color, and acrylic paintings.
- assist in the preparation of models of animate objects or structures such as exhibits, displays, etc.
- keep informed of new methods, techniques, materials, and equipment which may facilitate or enhance the quality of the materials produced.
- supervise and maintain standards for quality production of materials using own initiative for taking corrective measures when necessary.
- provide consultation and assistance to faculty and staff members regarding graphic arts equipment, techniques, and procedures.

Figure 19. Consultation with an instructor.

Figure 20. Preparing materials for self-instructional programs.

Graphic artist

- prepare pen and ink, wash, acrylic, water color, crayon, or oil paintings and drawings of medical or anthropological subject matter.
- use mechanical and photographic lettering equipment in the preparation of charts, graphs, and other materials for manuals, magazines, publications, lectures, and self-instructional materials.
- letter freehand with felt tip pen or speedball.
- prepare visual aids such as transparencies, posters, signs, and mounted and laminated materials for exhibits and displays.

Photography

A photographic area should be staffed with sufficient technical personnel to provide black and white and color photographic materials in a variety of forms (Fig. 21 thru 23). The number of staff will depend on the types and volume of production undertaken by the school. For schools not involved in cine production, two photographers, appropriately supervised, can produce a tremendous amount of photographic materials. Duties of the photographers may vary from school to school. However, the basic work performed by the photographic staff is as follows:

Photographer (supervisor)

- supervise daily photographic functions of the photographic facility.
- maintain a file of photographic materials and keep inventory of photographic supplies, reordering as required.

- direct and coordinate photography of self-instructional materials, case documentation of patients, lecture and publication materials, items for cataloging or legal use.
- keep informed of new methods, techniques, materials and equipment which may facilitate or enhance the quality of the materials produced.
- supervise and maintain standards for quality production of materials using own initiative for taking corrective measures when necessary.
- provide consultation and assistance to faculty and staff members regarding photographic equipment, techniques, and procedures.
- schedule photographic services and provide materials for exhibits, displays, or public relations.
- supervise and operate still and motion picture equipment, including lighting set-ups, selection of lens (normal, micro or macro) and other related accessories.
- supervise developing, printing, and duplication of photographic materials.
- oversee equipment servicing, maintenance, and operating condition.

Assistant Photographer

- responsible for photography of self-instructional materials, medical or anthropological specimens or structures, medical techniques, case documentation of patients, lecture and publication materials, items for cataloging or legal use.
- responsible for preparation of chemicals, developing, printing, and duplication of photographic materials.
- operate still and motion picture equipment, including lighting set-ups, selection of lens (normal, micro or macro) and other related accessories.
- provide consultation and assistance to faculty and staff members regarding photographic equipment, techniques, and procedures.
- provide photographic services and materials for displays, exhibits, and public relations.

Figure 21. Photography of patient for case documentation.

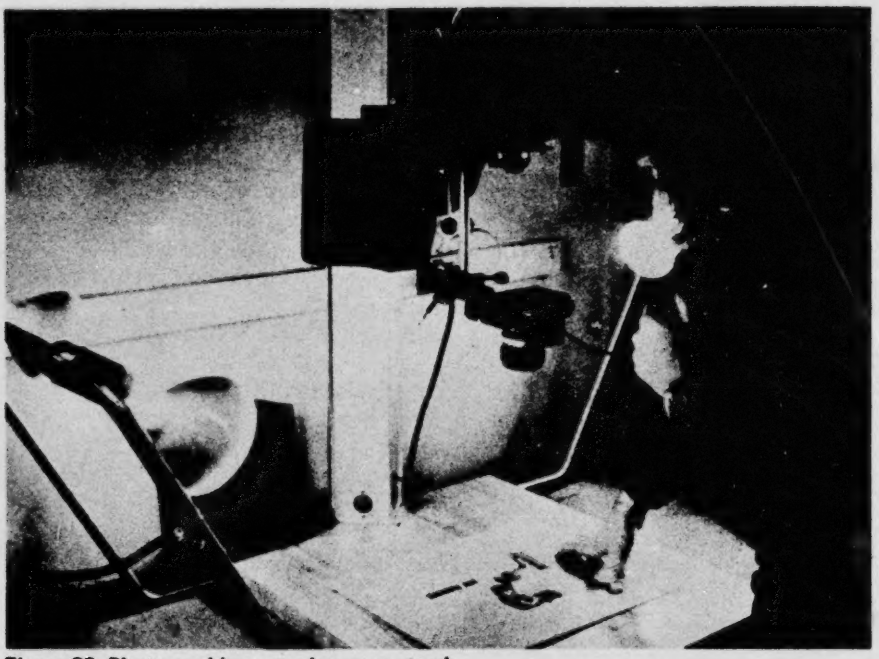

Figure 22. Photographing art using copy stand.

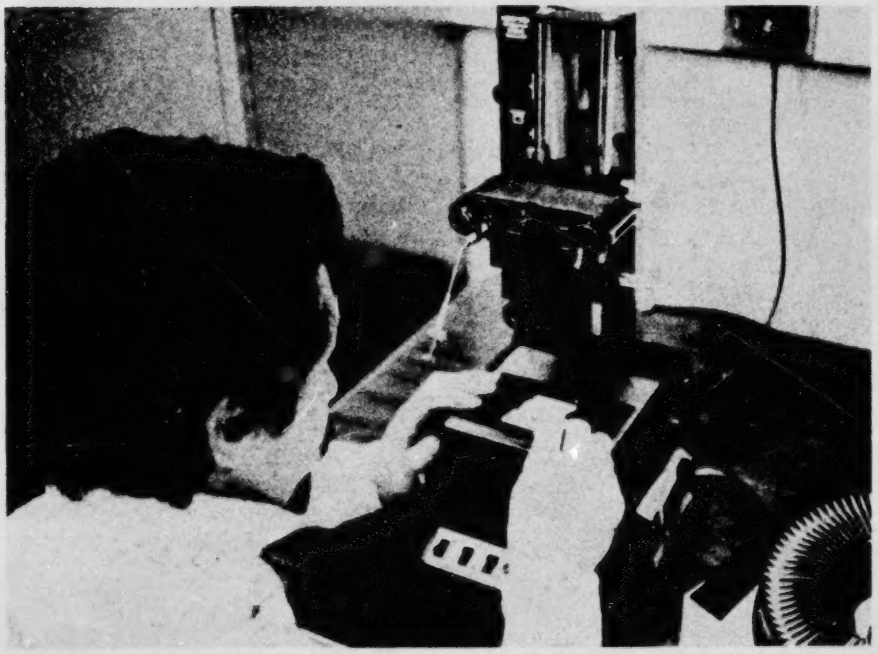

Figure 23. Slide duplication.

Television

Television utilization should be an integral part of the learning resource center. The demand for color television programs providing a one-to-one relationship of students to instruction is imperative in the health sciences. With the advent of the videocassette, television programs are at the fingertips of the learner (Fig. 14).

Quality production of television programs requires competence on the part of the television staff. Television services may require extensive planning, recording, duplication, and editing before a program is acceptable for student use. Furthermore, programming needs may call for special effects or the integration of film clips, slides, histology specimens, and graphics materials, turning what appeared to be a simple production into a complex integration of media aimed at attaining the program objectives (Fig. 24 thru 28).

The basic television personnel needed for providing materials for a learning resource center include a producer/director, production manager, engineer (technician), and two technical assistants. Types of work performed by each staff member in this area are:

Producer/Director

- in cooperation with instructional designers, consult with faculty and staff members
- in the design, scripting, and production of self-instructional materials for lectures, patient education, administrative or public relation programs.
- coordinate and direct television personnel in all phases of program production during live or videotaped programs.
- provide in-service training for faculty and staff members in reference to production procedures, techniques, props, and equipment needs and limitations.
- supervise scheduling of television personnel for rehearsals (walk throughs) and other preliminary events culminating in a finished production.
- coordinate production of graphic and photographic materials to be used in productions ensuring all materials are in the proper format and display proper technical quality.
- coordinate and assist in the editing of television programs.

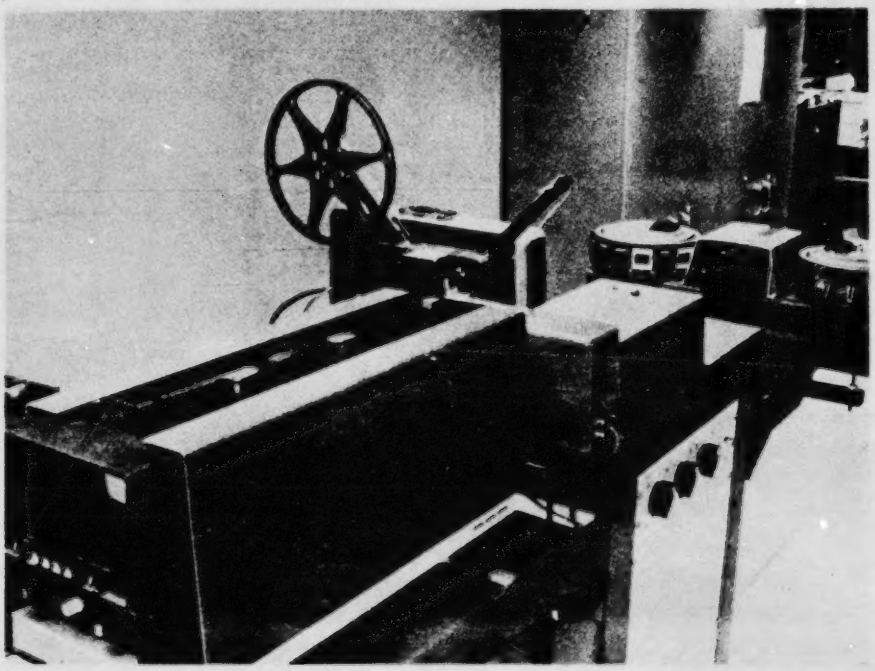

Figure 24. A film chain provides the incorporation of various media into the TV program.

Figure 25. A Microscope adapted to a color camera provides integration of histology specimens into television programs.

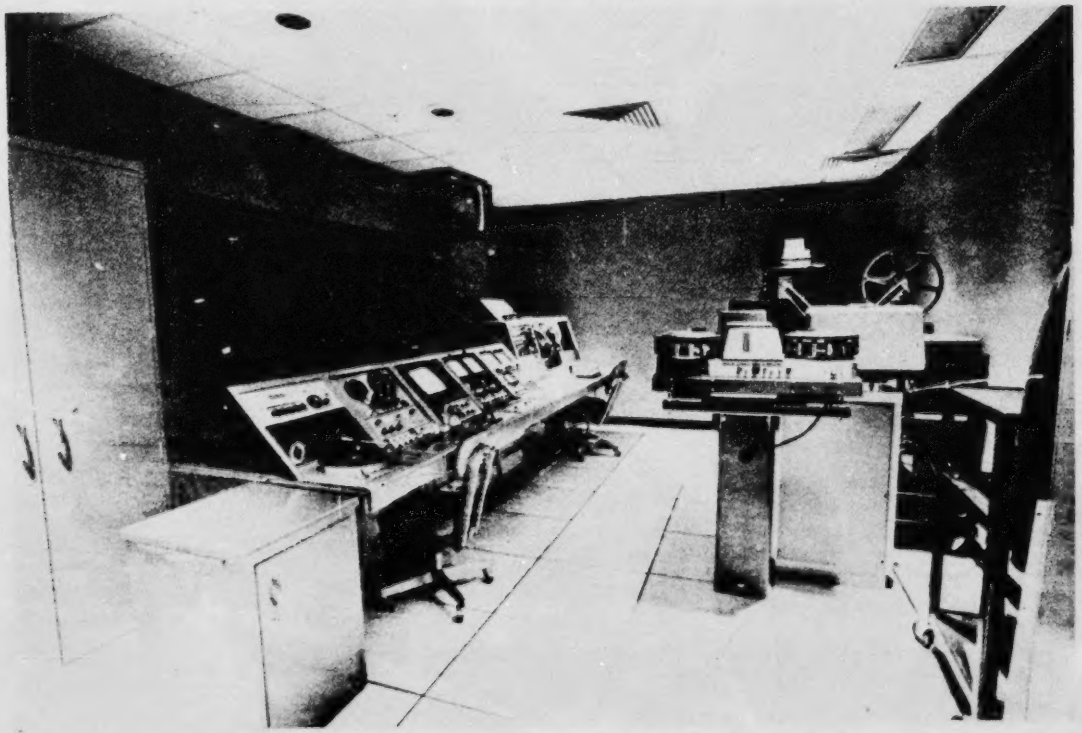

Figure 26. A fully-equipped television facility provides programming to meet instructional needs where motion is a necessity.

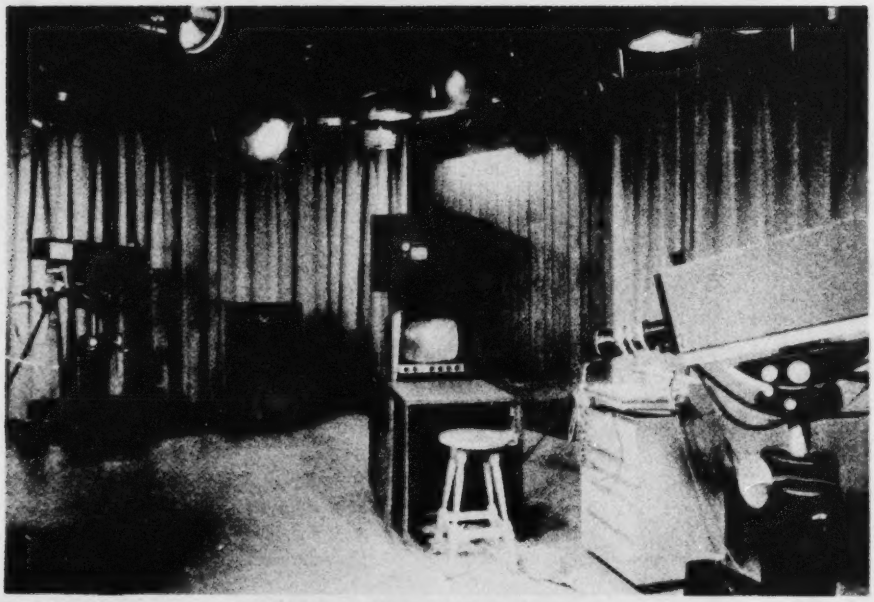

Figure 27. Facilities for a television studio vary in complexity.

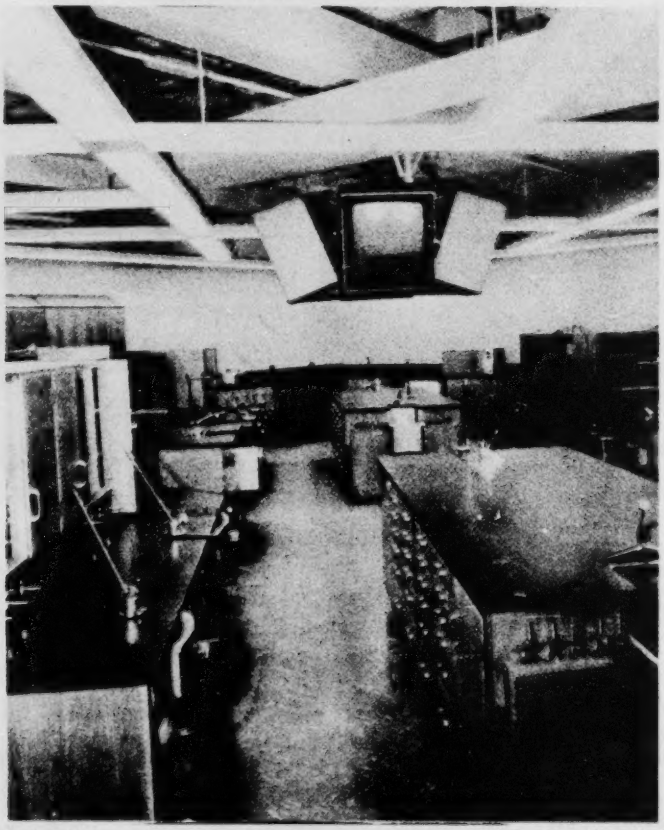

Figure 28. Television receivers situated throughout numerous laboratories provide dissemination of information to large classes simultaneously.

Production Manager

- assist and support activities of producer/director in all facets of program production.
- supervise daily functions of television production facility.
- maintain an open channel of communication with engineer (technician) to ensure television and associated equipment is properly maintained, serviced, and repaired, thus providing maximum program quality with a minimum amount of equipment failure.
- coordinate and supervise preparation of television facilities for production and rehearsals, i.e., lighting, set-ups, props, camera positions, audio and video checks, special effects equipment checks, card holders, microphone placements, backgrounds, checking graphic and photographic materials.
- maintain tape library.
- schedule all editing sessions, playbacks, and tape duplications as requested. prepare records listing number of productions, playbacks, duplications, and time allocations for these items.
- maintain inventory of television supplies and equipment, reordering as required.
- keep informed of new methods, techniques, equipment, and materials which may facilitate or enhance the quality of programs produced.
- supervise and maintain standard for quality production of programs using own initiative for taking corrective measures when necessary.
- provide consultation and assistance to faculty and staff members regarding television standards for use of graphic and photographic materials, utilization of television techniques and equipment. (Fig. 29)

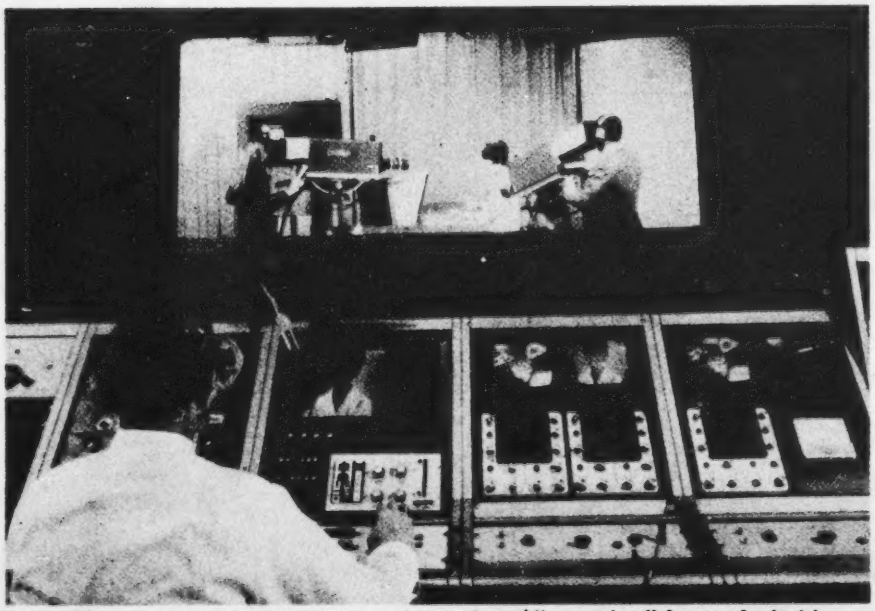

Figure 29. A production manager assists the producer/director in all facets of television production.

Engineer/technician

- maintain, service, and repair all television and associated electronic equipment, providing maximum technical quality with a minimum of equipment failure.
- supervise technical assistant in the performance of routine equipment maintenance and service.

- maintain complete records and technical data regarding maintenance service and reporting of television origination, transmission, and reception equipment.
- perform routine checks in order to evaluate and analyze equipment performance in terms of standards of technical quality; recommend acquisition of new equipment.
- maintain inventory of electronic equipment, reordering parts, components, and related supplies when necessary.
- keep informed of new equipment and improved methods of repair, maintenance, and servicing that would facilitate or enhance the overall quality of television programming.
- develop and maintain open communications with the production manager to ensure proper performance of all facets of the television facility, minimizing production delays. (Fig. 30)

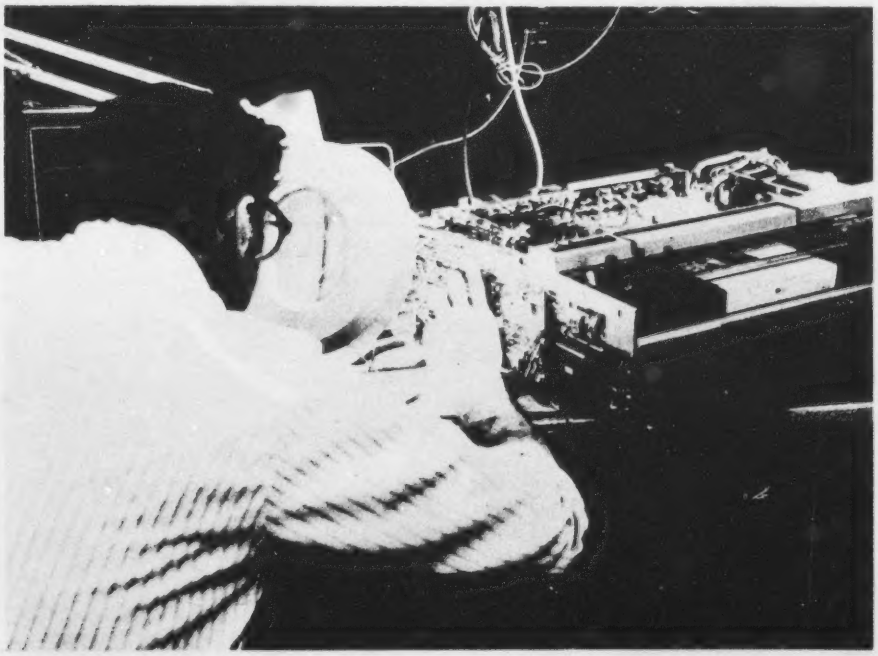

Figure 30. A television system is only as good as the maintenance that supports it.

Technical Assistants

- perform a variety of routine technical tasks involved in the operation and maintenance of the television facility and other associated equipment.
- assist in television production, serving as cameraman or floor manager; set up required equipment or props; set up lighting and microphones; position cameras
- check all display systems prior to transmission of programs, reporting all problems to production manager and engineer. (Fig. 31)

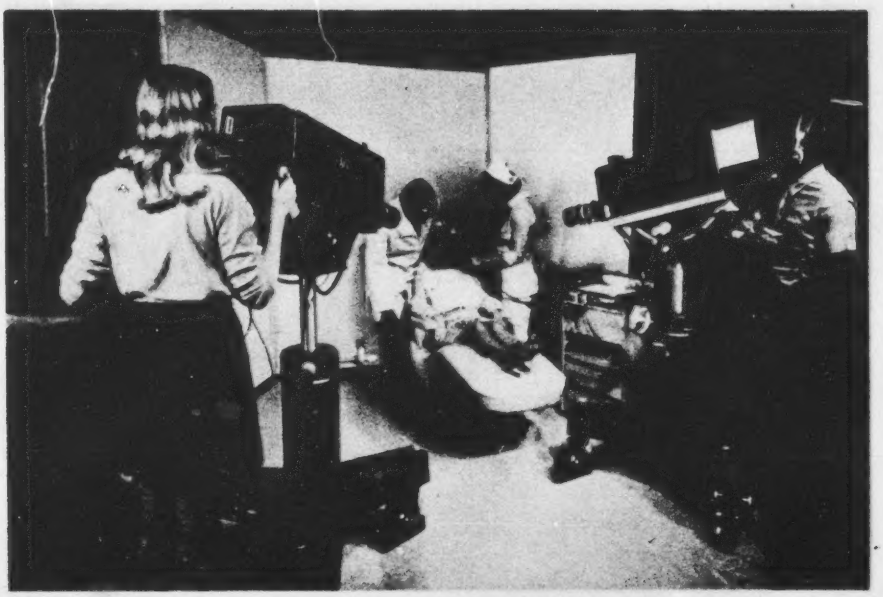

Figure 31. Technical assistants serve as cameramen and floor managers.

MAINTENANCE

The equipment utilized in the learning resource center is useless unless properly maintained and serviced on a regular basis. Faculty and staff motivation and involvement in the design and development of learning materials are likely to be lost if they are constantly confronted with production problems caused by inadequate maintenance of equipment. Further, students will lose time and patience if they are constantly confronted with malfunctioning equipment.

In order to properly service and repair the equipment used in the learning resource center, it is recommended that a service policy be negotiated at the time the equipment is purchased. Additionally, a full-time technician must be hired to perform preventive maintenance and to solve technical problems immediately (Fig. 32). Various types of test equipment and an ample supply of parts for the equipment should also be purchased.

To assist in the maintenance and periodic servicing of equipment, adequate records are needed. Fig. 33 shows one type of form that may be used for this purpose.

These forms can be kept in a three-ring binder and categorized according to equipment type, i.e., 16 mm. projector, 35 mm. slide projector, etc., for easy reference.

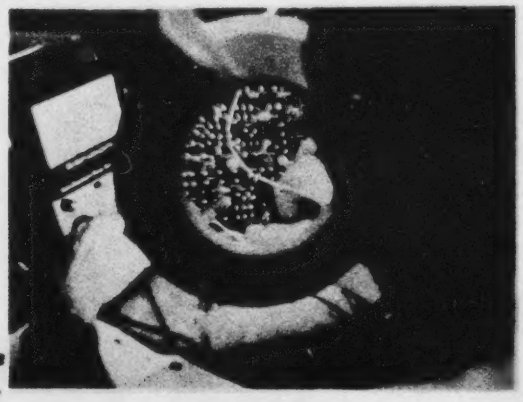

Figure 32. A full-time television engineer/ technician can usually handle general maintenance and service of equipment used in the LRC.

ILC #

SERIAL #

ITEM: KODAK 750 SLIDE PROJECTOR

PART/FUNCTION	MARCH 19 ___	JUNE 19 ___	SEPT. 19 ___	DEC. 19 ___

KEY: BLANK – OPERATIONAL; M – NEEDS MAINTAINANCE; R – REPLACE. PART; S – SERVICED
DATE: SEE REVERSE SIDE UNDER PART/FUNCTION FOR EXPLANATION

PLACE INITIALS NEXT TO APPROPRIATE KEY SYMBOL.

Figure 33.

CHARGES FOR LOCALLY PRODUCED MATERIALS

Charges for materials, except for work of a personal nature, should not exceed the actual cost of the materials. This policy may elicit more active participation from the health educators in terms of producing instructional materials. In some cases, such as producing independent learning programs for the independent learning center, the learning resource center may not charge departments for these materials.

In order to maintain accurate records of the materials produced and the charges for these materials, it is recommended that a form be prepared (Fig. 34). The form, itself, has four colored copies. White serves as the file copy for the production area and is used for transcribing pertinent information to the index cards. Pink is used for maintaining records for billing purposes. The green copy is the client's record of the services performed and the charges. In addition it provides the necessary information for delivery. A yellow copy is enclosed with the original materials and serves as a reference for locating materials in storage.

Under Job/Neg. + in Figure 34, 79 indicates the year, 107 the job number, and GPT, that graphics, photography and television are involved in the production of the materials. Under the heading "To Be Used For", EIR is checked, indicating that the Division of Educational & Instructional Resources will absorb all charges because the finished program will eventually be placed in circulation in the independent learning center.

The rationale for such a form is apparent; it provides

1. an accurate record of the type of work performed, i.e., graphic, photographic, television, or any combination of these services. Such information provides a basis for budget considerations for reordering materials as well as a means of measuring the overall productivity of the local production facility.
2. an efficient means of relocating materials placed in storage, i.e., negatives, artwork, television cards, or tapes. To facilitate this procedure, index cards (Fig. 35) may be used to provide the most important information. Separate files may be used for this purpose, classifying the information according to instructor's name, department, or subject matter.
3. a means of scheduling services and providing all individuals concerned with written confirmation of the equipment or materials needed, the date, time, etc.
4. an accurate record of the type and quantity of work produced by members of the production staff. This information may be beneficial in evaluating personnel for promotions or establishing a rationale for hiring additional personnel.
5. a record of the type of materials produced by instructors, departments, or schools, providing the administration with a means of measuring productivity and providing due recognition of accomplishments.

In addition to the production form, it is recommended that a record book be maintained as a means for numbering orders, cataloging materials on an annual basis, and indicating the type work performed–(G) graphics, (P) photography, or (T) television (Fig. 36).

University of Maryland
SCHOOL OF DENTISTRY

JOB/NEG. #	NAME	DEPT.	TEL. #
79107 GPT	DOE	PATHOLOGY	528-7082
DATE	**DATE REQ.**	**DELIVER TO**	
1-1-79	1-15-79	TV	

TO BE USED FOR: ☐ LECTURE ☒ EIR ☐ DOCUMENTATION ☐ LEGAL ☐ OTHER ☐ EXHIBIT ☐ CATALOG ☐ PUBLICATION ☐ PUBLIC RELATIONS

GRAPHIC ARTS

SUBJECT	MEDIA
INTRAORAL RADIOGRAPHIC SURVEY	COLORED BOARD, HAND LETTERED TITLES

# OF PIECES	SIZE	FINISHED WORK	DATE COMPLETED	ARTIST
10	TV	TV	1-8-79	JLG

REMARKS: SEE ATTACHED FOR TITLE INFORMATION

PHOTOGRAPHY

PLEASE PHOTOGRAPH: PATIENT: JONES
INTRAORAL SHOTS

APPROX. # OF PICTURES: 10

FINISHED WORK MADE INTO

SLIDES: ☐ B&W ☒ COLOR ☐ DIAZO ☐ DUPE
SIZE 2x2
EACH 1
TOTAL 10
NOTES: TV FORMAT

PRINTS: ☐ B&W ☐ COLOR ☐ GLOSSY ☐ MATTE ☐ MOUNT
SIZE
EACH
TOTAL
NOTES:

REMARKS: DR. DOE WILL EXPLAIN TYPES OF SHOTS NEEDED

TO BE SHOT 1-7-79, 2:00 P.M. IN PHOTO STUDIO

DATE COMPLETED: 1-11-79 PHOTOGRAPHER: FEE

TELEVISION

DATE(S) REQUESTED	TIME(S) REQUESTED
1-15-79	1:00 - 4:00 P.M.

PROGRAM TITLE	TAPE #	VIEWING AREA
INTRAORAL RADIOGRAPHIC SURVEY	14 A	

☐ LIVE ☒ RECORD ☐ PLAYBACK ☐ DUPE ☐ B&W ☒ COLOR ☒ IVC ☐ SONY

PROPS NEEDED: DENTAL CHAIR AND UNIT, TITLE CARDS AND SLIDES, 3 MICROPHONES

REMARKS: INSTRUCTOR WILL PROVIDE INSTRUMENTS

CHARGES		
GRAPHICS	5	00
PHOTO	2	50
TV	-----	
TOTAL	7	50

Figure 34.

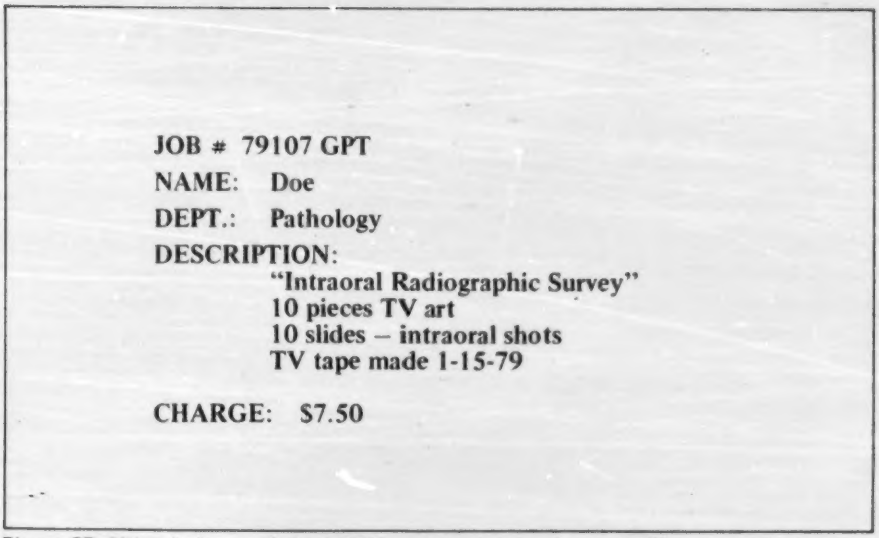

Figure 35. Using index cards in addition to production forms facilitates rapid relocation of stored materials.

Figure 36.

JOB #	DATE	DESCRIPTION	NAME	DEPT.	
79107 GPT	1-1	Intraoral Radiographic Survey	Doe	Pathology	needed 1-15-79

CHAPTER 5
PLANNING AND PRODUCING INDEPENDENT LEARNING PROGRAMS

Programs are being developed which will allow students to master the fundamentals of health education through self-instructional materials, sparing teachers the drudgery of constant repetition of basic information in their subject areas.

Independent learning materials provide continuous communication and control of the learning situation, thus alleviating occasional communication and control since it is impossible to provide each student with a private instructor. To accomplish this with self-instructional materials, the health educator must perform at least two interrelated, but separate, functions:

1. the planning of instruction, and
2. the implementation of instruction.

The former will continue to be the chief involvement of the professor. However, the latter will be accomplished automatically, at least in part, by instructional devices located in the independent learning center.

In order for the professor to be successful in planning instruction, a systematic approach must be followed in the development of self-instructional materials. This systematic approach involves a number of steps (Fig. 37).

Initially, the faculty member will select a specific topic he feels necessitates a self-instructional program. This topic may be selected because it is difficult for students to comprehend; it is material which requires repetition to every new class as basic knowledge in the course; or it is information which does not require the presence of a faculty member for presentation or discussion.

Once the instructor has determined the subject matter, he may approach the staff of the learning resource center with this idea. Together, they will discuss the topic and objectives of the program. The proper methodology, as well as the most efficient and functional means of presentation, are then determined. This accomplished, a preliminary draft of the program is prepared. For example, in a tape/slide presentation, a script is prepared, at which time consultation between the subject matter expert and the learning resource center staff determines the avenue for putting the program in a trial presentation format. Pertinent visuals are then prepared by the artist and are made into slides to accompany the tapes.

At this point, other instructors are consulted and students are given the program for review and study to determine its effectiveness. Revisions are made, if necessary. In its final form, sufficient copies are made and placed in the independent learning center for student utilization.

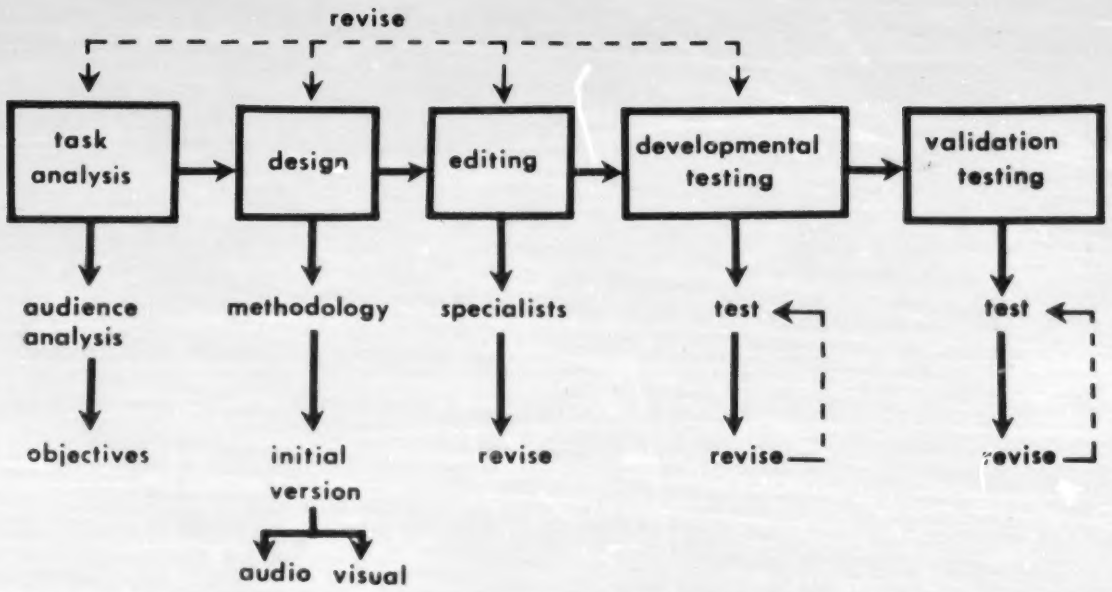

Figure 37. Systems approach for developing self-instructional programs.

CHAPTER 6
STUDENT UTILIZATION OF THE INDEPENDENT LEARNING CENTER

Student access to the independent learning center must be provided when students have independent study time and a desire to use the center. Media should be in good physical condition and easily obtained and returned to the check-out desk (Fig. 4). The independent learning center should provide a conducive environment where students may obtain and study self-instructional materials in a variety of media and on levels designed to allow them to cover by independent study, information conventionally included in their courses. No one process or experience or material is sufficient for learning all information or subjects, for acquiring all skills, or developing all desirable attitudes or appreciations.

A Case Study: The University of Maryland School of Dentistry

Although facilities for independent study are found throughout the school, the primary source is the Independent Learning Center (Fig. 39). Approximately 3,700 square feet of space is devoted to facilities for independent study. In part of this space, 100 study carrels are provided for use of self-instructional media. Some of the carrels are equipped for 8 mm. single concept films, synchronized film cartridge/tape programs, slide/tape materials, programmed books, programmed materials, and filmstrips, records, tapes, and other self-instructional materials as needed. Space is provided for a reading room, storage of independent learning programs, and offices for the secretary and the director.

From the standpoint of the student, the ILC provides a comfortable, efficient, resource-filled area where instruction is available in an independent setting. As the student enters the ILC, he selects the desired program and the appropriate study carrel and performs the required functions specified in the program. There are more than 1,000 self-instructional titles available for student utilization. These programs are not considered supplementary to the students' curriculum, but are an integral part of his studies.

Presently, upon enrollment in the School of Dentistry, the freshman student becomes actively involved in independent learning as part of his curriculum. Freshmen courses in anatomy and histology rely heavily on self-instructional media presentations for introduction of new material, and students themselves rely on the availability of these self-instructional programs for review and repetition of course material. There are 16 hours of course time each devoted to anatomy and histology for freshmen, and there are over 25 programs prepared by the University of Maryland faculty members in these areas for student utilization in both the anatomy laboratories and in the Independent Learning Center. Also, significant amounts of preclinical techniques are taught through independent learning programs.

The sophomore student is quite reliant upon independent study materials. Basic science materials such as general pathology, as well as preclinical techniques and basic science laboratory techniques in physiology and pharmacology, are presented through self-instructional media. The entire course in biomedicine is presented on synchronized slide/tape programs, programmed books, filmstrips, and microscopic slides, with weekly

conferences being held with the faculty for review and questions. Additionally, the entire course in preclinical fixed partial prosthodontics has been consolidated into one manual for students to use in the laboratory while performing the techniques described. This manual is supplemented with 21 synchronized slide/tape programs for the students' viewing and independent study.

Junior students are aided by the use of single concept films on many aspects of clinical dentistry including dental auxiliary utilization. Quick reference is provided for their introductory clinical year in patient and operator positioning, radiographic techniques, etc.

Senior students, who spend most of their time treating patients in the clinic, have access to the Center's library of single concept films ranging in content from basic operative procedures to intricate surgical techniques.

The Independent Learning Center is open daily for student utilization from morning through early evening hours and on Saturday. Most often students use the media in the Center itself; however, the opportunity is provided for students to check out media for use in laboratories where they are working or for use away from school during holidays or weekends.

Since the introduction of self-instruction into the curriculum, the dental student has become actively involved in course work. He spends an average of ten hours weekly reviewing course material and has the opportunity to work at his own pace as his schedule permits. This has allowed the more perceptive student an opportunity to advance in areas in which he is particularly interested, while granting the slower student the availability of materials for his review and repetition until he has mastered the subject matter.

In some subject areas programs provide students and dentists with multiple media on a specific topic. An example of how learning experiences are augmented by this new method of teaching can be shown with the program "Lesions of the Tongue". The Department of Pathology has utilized the following approach: a color TV tape has been made of a dentist palpatating the tongue–how he does it and what he looks for, etc. Slide/tape and microscopic slides show what to look for by using various lesions of the tongue. Color prints and narratives explain the subject from different points of view, while a programmed book presents specific cases, asking the students to make their own diagnosis. Aside from the teaching advantages of presenting materials this way, if a student has a patient with lesions of the tongue, he can refer to any of these programs for review or help in making out a treatment plan.

This innovative approach has developed new ways of studying dentistry, provided more individualization of materials, and involved the students more personally in the learning process. It has also altered the role of the professor who, while the programs are in operation, produces other materials which are more interesting to the student than the usual pattern of traditional lectures, written "busy" work, and straight text reading. Professors also consult with media personnel for guidance in producing, utilizing, and evaluating the media they produce.

CHAPTER 7
CONSTRUCTION CONSIDERATIONS IN THE DESIGN OF THE LEARNING RESOURCE CENTER

The well-designed and properly equipped learning resource center (Fig. 38) must serve the needs of the educational program—students, teachers, and administrators. It is clear that the educational specifications must come first if the learning resource center is to fulfill its role in the program.

Can the students see and hear the independent learning programs? Are lighting, acoustics, ventilation, and furnishings proper for all educational tasks? Are room colors so depressingly drab that the atmosphere discourages enthusiasm? Is there sufficient floor space, equipment, etc.? All of these physical and environmental factors are common problems facing the designer of a learning resource center.

Location of the Learning Resource Center

The location of the learning resource center is critical. If students and instructors are expected to utilize the center, it must be located near the area where students and instructors work and study, preferably on the same floor—certainly in the same building. The location of the independent learning center should also be close to student activities. The independent learning center should be an area where relevant information is kept. The student may be referred to a film or slide/tape program for immediate viewing. Thus, immediacy is extremely important. It should be pointed out that the independent learning center is not just an area where volumes and volumes of "old" books and films are kept for research purposes—rather, it is an area of recent, up-to-date, relevant teaching and learning materials. If the majority of students' work and study is to occur on the second floor, the independent learning center should be on or near this area. The television center, photography, and graphics areas should be in the same building with easy access by students and faculty members. The location of these areas, however, is not as critical from the standpoint of the student.

Space Allocation

Variations exist among schools in the design and arrangement of learning resource centers. In some schools, a single media center will effectively serve the needs of students, instructors, and administrators.

In large schools, or in schools with innovative programs, additional space may be needed. The general recommendations which are given below will need to be expanded, decreased, or adapted to meet the instructional program of a particular school. Also, the present design of the school may not permit the allocation of space recommended by the following list.

In some cases, large centers may be divided according to some other organizational pattern such as: pre-clinical or clinical, or satellite centers by subject, grade level, etc. Whether there is one center or several sub-centers, it is desirable that the total program be administered by one qualified director.

The specifications which follow are based on an enrollment of approximately 600 students. It is important to note that more space must be allocated where there are sub

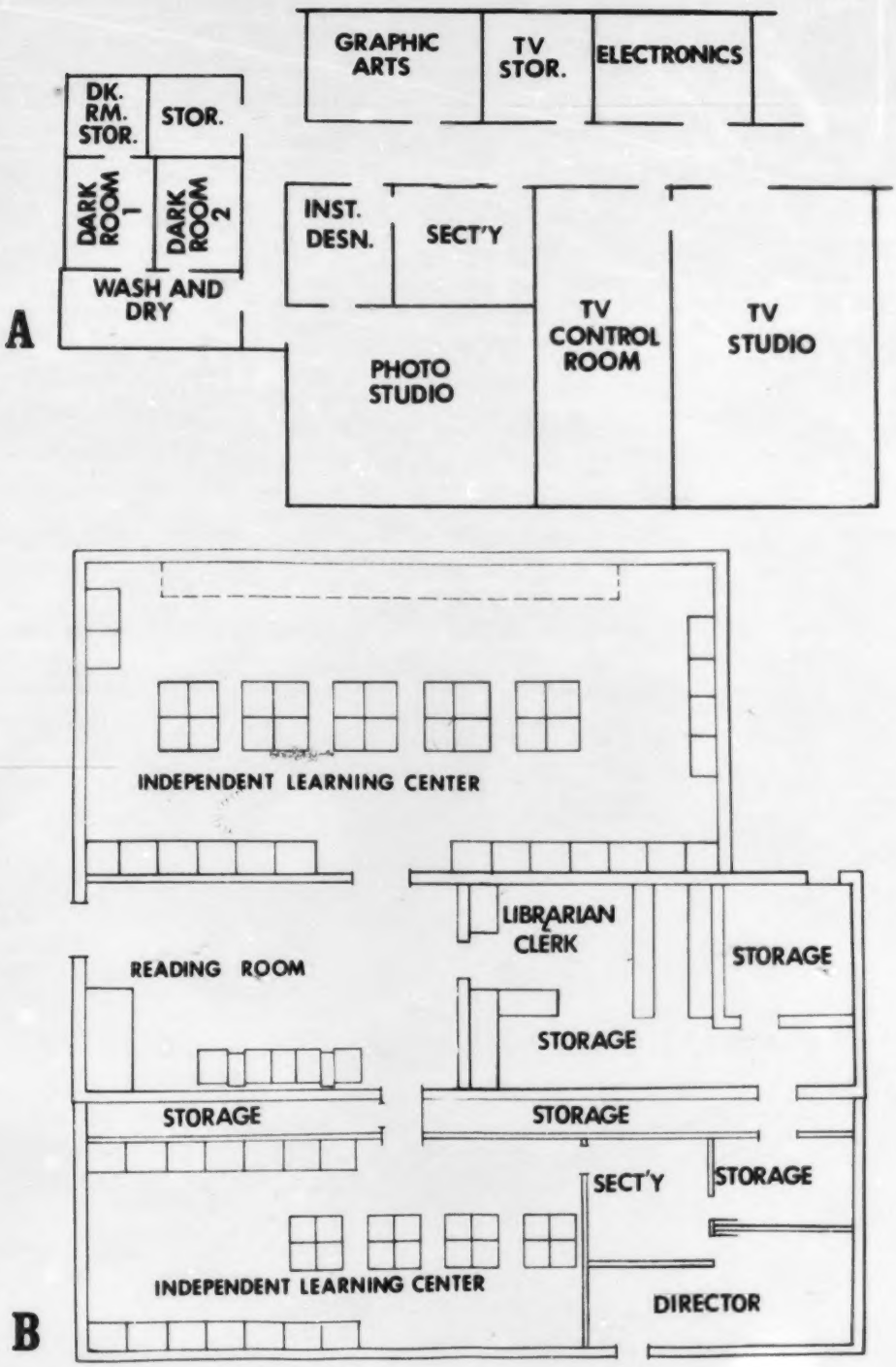

Figure 38. Basic design for a Learning Resource Center.
A. Basic design for a local production facility.
B. Basic design for an Independent Learning Center.

or satellite centers than where there is a single learning resource center. Likewise, additional equipment and personnel will usually be required when the media program has more than a single learning resource center or a learning resource center with resource or satellite centers.

The recommendations for space for the learning resource center are as follows:

Functions	Special Aspects	Space (in square ft.)
Administration	office space for 3 professional staff members: planning, consulting, developing	540
Maintenance/repair	television and other audiovisual equipment	120
Television studio	soundproof studio with 15 ft. high ceiling. doors 14' x 12'	852
Television storage	for TV properties, visuals, etc.	120
Office/storage/work console	playback-control room	350
Audiovisual equipment storage	all classrooms, learning center, and satellite centers should be equipped. Thus a smaller storage space	344
Stacks	all independent learning materials, books, and non-print. This is not to house "traditional" library books for research, only independent learning materials such as programmed books and other non-print; textbooks are not provided here	540
Media production– Illustration	where graphics and illustrations are provided, workroom	378
Still photography	studio, copy, duplication workroom	200
Dark room	light-proof, safe lights, running water, sinks	288
Production Lab.	sinks, dryers, cutters	
Independent Learning Center	100% of carrels be equiped with power for all types of media Carrels should be at least 2' deep x 3' wide equipped with shelving and media facilities including two electrical outlets wired for	The instructional program in some schools may require a larger area than others. In dentistry, the heaviest utilization may be pre-clinical. As students become more involved in

Functions	Special Aspects	Space
	20 amps. If needed, coaxial distribution for CAI and TV utilization. It is suggested that no more than 100 carrels be located in one area. Dividers may be used to provide a break.	clinical work, their utilization will probably decrease. If this is true, then 1/3 to 1/2 of the student body in the first two years should be accommodated in the learning center. 1/6 to 1/3 of the total student body should be accommodated when considering preclinical and clinical students. Note: the number of independent learning materials and their importance in the curriculum will alter these recommendations. Although the size of the carrel will determine to some extent the area needed per student, a general per student square foot allocation should be at least 20.
Small group viewing and listening	listening centers for multiple listening can be provided in the learning center	If additional space is needed 200 square feet would provide enough to accommodate 15 to 20 students at one time.

INDIVIDUALIZED STUDY FACILITIES

Areas for independent study activities are increasing in importance. The following thoughts might be considered in planning such facilities.

1. If a large number of carrels are used, they should be broken up visually so they do not have a fence or regimented appearance (Fig. 39)
2. In addition to the central learning center there may be a need for satellite centers scattered throughout the building so that they are more accessible to students (Fig. 40)
3. Individual study spaces, or carrels, may have a variety of shapes and sizes. They may be enclosed or semi-enclosed. Once the purpose of the carrels is determined, the appropriate size and shape can be determined.
4. Individual study carrels should be located near other learning areas.
5. Space for instructors should be provided in or nearby to allow for consultation as needed.
6. If projection devices are to be used, proper space for devices and note taking must be provided.

Electrical Installations

In an independent learning center, sufficient electrical power is mandatory. Every carrel should have a minimum of two 110/120 V electrical outlets. These outlets should

Figure 39. Independent study carrels with appropriate hardware to complement software.

Proper attention given to the environment in the planning of a learning resource center provides an atmosphere conducive to self-study.

be on circuits independent of the room lighting, fused for 20 amperes each with master fusing and circuits planned to prevent overloading by use of a maximum number of media.

Lighting

A fundamental principle in the design of instructional (learning) areas is that the space and facilities accommodate the specific instructional program offered in a particular learning environment.

For example, light control facilities should be available so that the instructor may select the optimum lighting. To ensure optimum utilization of all media, the light control facilities should be capable of varying the room illumination from a daylight level down to a level where the light does not exceed 1/10 foot candle.

Lighting in an independent learning center is critical. Some students may be reading, viewing through a microscope, viewing television, watching a movie or slide/tape, etc. Therefore, a daylight level is sometimes necessary, yet not always required. The light should be properly diffused so there is an absence of "hot spots" and glares (Fig. 39). With the proper independent study carrel, projected media can be satisfactorily viewed in a well illuminated room.

Ventilation

Classrooms frequently present a cooling rather than a heating problem. Likewise, in an independent learning center, there is usually a cooling problem. When there is maximum utilization, as many as 75 projector lamps may be on in a room with 50 carrels. Thus, it is necessary for some type of forced mechanical ventilation to be provided. Since conditions

vary greatly from classroom to classroom, particularly on different sides of the building, the ventilation system should provide independent controls in the independent learning center. Regardless of the type, the ventilation system should be capable of changing from a heating situation to one delivering a minimum of 15 cubic feet of cool air per pupil per minute at any time. Obviously, these suggestions assume critical importance when the independent learning center is used for viewing projected media over prolonged periods of time.

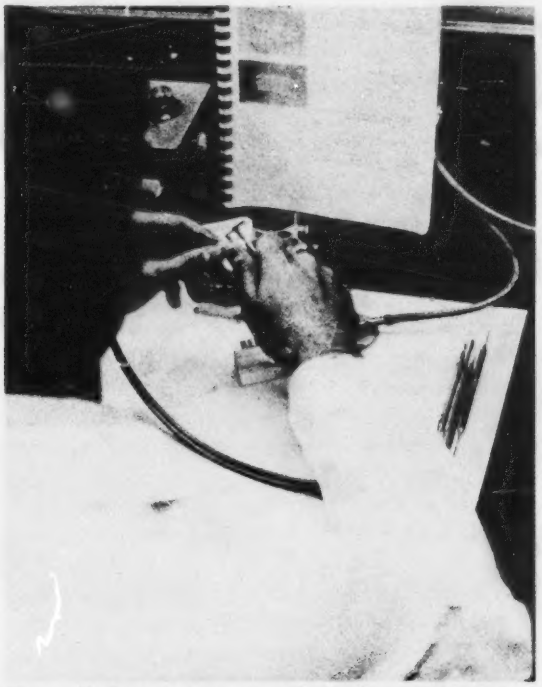

Figure 40. Programs may require both cognitive and psychomotor involvement.

Acoustical Considerations

As with all classrooms, the independent learning center should be provided with an acoustically treated ceiling. It is also recommended that reasonable acoustical separation of adjacent classrooms, lounges, offices, etc., be provided since such sound insulations permit the use of the independent learning media without resulting interference which frequently occurs where architectural designs permit direct sound transmissions between rooms.

Storage Facilities

An active learning resource center requires a large area for storing independent learning programs, extra bulbs, projectors, etc., (Fig. 41). This space is critical and is the most often underestimated area of allocation.

Floor

In the design of independent learning centers, one must determine the function of the center, anticipate future needs and developments, and act accordingly. For example,

where will the electrical wiring, television coaxial cables, computer coaxial cables, etc., be placed? These utility wires must come up from the floor or down from the ceiling. Therefore, if the utility lines are to be placed in the least visible position, they may need to be placed under a false floor (Fig. 42 thru 44). The raised computer floor (5") may be obtained in sections of 2' squares. These sections are easily moved, permitting later addition of electrical wiring, computer lines, etc. Electrical outlets (20 amperes each) should be provided on all walls and in the floor with flexible cable. The flexible cable allows location of outlets in the floor where needed. It may be desirable to have carpet attached to the raised floor (Fig. 43). The carpet provides a quiet and luxurious study area and, if desired, can be made with special metallic fillings which reduce the buildup of static electricity. Carpet with metallic fillings has proved to be advantageous for students who utilize the equipment.

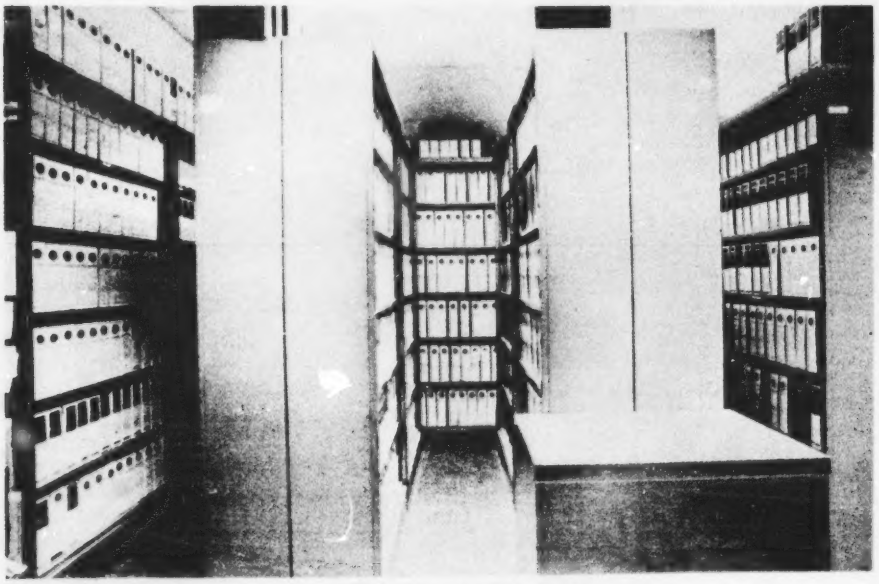

Figure 41. Library of Instructional Media for Independent Learning.

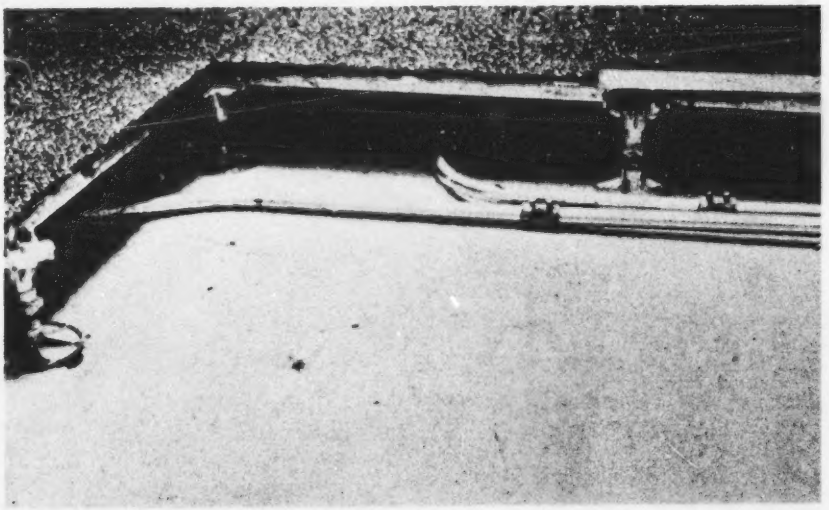

Figure 42. A computer raised floor provides easy access and routing for utility lines.

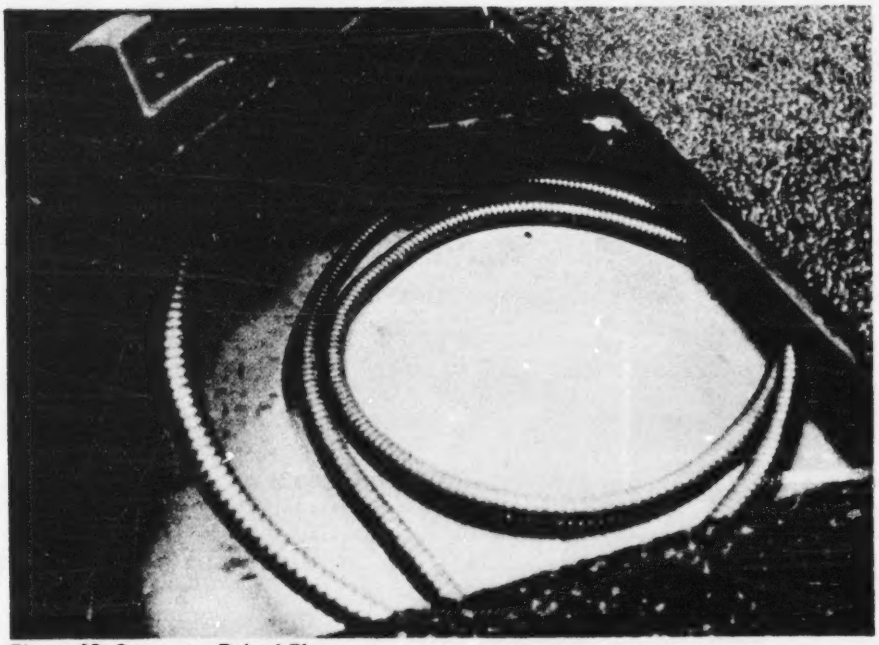

Figure 43. Computer Raised Floor.
Outlets may be moved within a 20' radius, permitting flexibility in utilization and additional utility lines for electricity, TV, computer assisted instruction, etc.

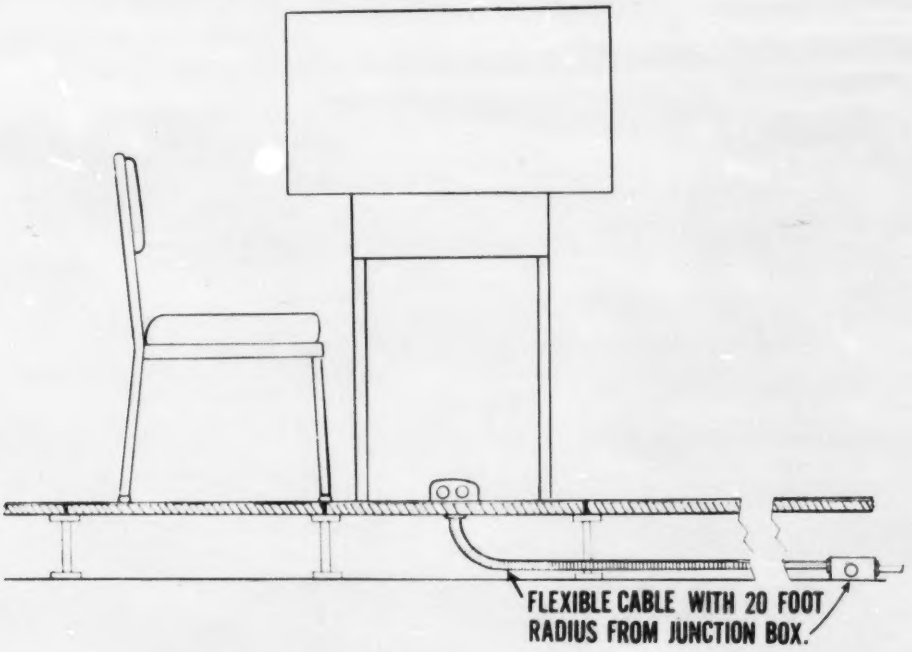

Figure 44. Illustrating raised floor and flexible cable for electricity.

CHAPTER 8
EVALUATION OF THE LEARNING RESOURCE CENTER

The constant systematic evaluation of the learning resource center is one of the most important functions the director and his colleagues will perform. Through a systematic evaluation the director will be able to focus on both long and short-range goals. Thus, he can identify strengths and weaknesses and effect desirable changes in his own administrative performance, in other staff members of the center, in teachers and students, and in the quality of services being provided. The results from a systematic evaluation should have a significant impact on the operation of the learning resource center and is certainly worth the time and effort involved.

There are many sources of evaluative criteria available to the director who wishes to evaluate his program. Some revisions may be needed in the criteria so that the evaluation instrument will be applicable to the operation of the learning resource center. Basically, some of the major categories are:

1. leadership adequacy of learning resource center director
2. learning resource center services
3. principles of learning and teaching
4. principles of curriculum development
5. application of media as an integral part of the curriculum
6. in-service education for faculty
7. standards for facilities for media utilization
8. standards for equipment for media utilization
9. standards for production of media for utilization
10. standards for professional and support personnel
11. desirable expansion and growth of consultant and technical support and services
12. budgetary support

The above categories point the way for the director to gather information on the learning resource center operation. He needs to choose with his colleagues the appropriate local evaluation instruments and procedures. The following evaluative checklist is an example to serve as a guide.

EVALUATIVE CHECKLIST FOR LEARNING RESOURCE CENTERS

Direction:

Circle *one* of the numbers at the left of the statement that most accurately represents the situation in your learning resource center. If a statement accurately describes the learning resource center, circle the *middle number* to the left of that statement. If you feel that the situation is below what is described, circle the *lower number*; if above, mark the *higher number*. Circle *only one* number.

I. LEARNING RESOURCE CENTER SERVICES

A. Learning Resource Center Commitment to the Media Program

1 2 3 The learning resource center consists of services managed by clerical and technical staff members. The services are not well coordinated and no one person has been given administrative responsibility for school-wide activities.

4 5 6 The learning resource center has clerical and technical staff. The program is directed by a staff person who has some educational media training, but not enough to qualify him as an educational media specialist. He reports to the administrative officer in charge of instruction.

7 8 9 The learning resource center is directed by a qualified media specialist who reports directly to the administrative officer in charge of instruction. He is provided with facilities, finances, and staff essential in meeting the media needs of the instructional program.

B. Commitment to Staffing the Learning Resource Center

1 2 3 The responsibility for the learning resource center services is assigned to various staff members whose primary commitments are in other jobs.

4 5 6 The responsibility for the learning resource center is delegated to a person who has had some training in educational media. He is provided with some clerical and technical assistance.

7 8 9 Leadership and consultative services are provided by an educational media specialist and a qualified professional staff. An adequate clerical and technical staff is also provided.

II. LEARNING RESOURCE CENTER SERVICES–CURRICULUM & INSTRUCTION

A. Learning Resource Center Commitment to Media as an Integral Part of the Curriculum

1 2 3 The learning resource center provides some educational media and services for teachers who request them, but teachers are not particularly encouraged to use the services.

4 5 6 A variety of educational media and services are generally available and some attempts are made to acquaint teachers with the services and to encourage their use.

7 8 9 The learning resource center provides the quantity and variety of educational media and services needed and encourages teachers to use media as integral parts of instruction.

B. Consultative Services in Media Utilization

1 2 3 The learning resource center personnel render consultative assistance in the application of educational media when they are asked to do so and are free from other duties.

4 5 6 The learning resource center personnel are usually available and are called on for consultative assistance in the use of educational media.

7 8 9 The learning resource center professional personnel work, as a part of their regular assignments, with teachers in analyzing teaching needs and in designing, selecting, producing, and utilizing educational media to meet these needs.

C. In-service Education in Media Utilization

1 2 3 In-service education is left entirely to teachers and is limited to their own capabilities and such other resources as they can find.

4 5 6 Professional educational media staff members are available on request to assist teachers and supervisors in in-service education activities relative to the use of educational media.

7 8 9 Professional educational media staff members are involved in planning and conducting continuous in-service education activities concerned with the selection, development, production, and utilization of all types of educational media.

D. Faculty/Student Use of Instructional Media

1 2 3 Only a few teachers make any use of educational media in their classrooms. Students rarely use media in class presentations.

4 5 6 Quite a few teachers make occasional use of educational media in instruction. Students occasionally use media.

7 8 9 Most teachers use appropriate educational media in instruction. Students use appropriate media for individual and group study.

E. Involvement of the Media Staff in Instructional Planning

1 2 3 The professional educational media staff is seldom involved with teachers in planning for the use of educational media.

4 5 6 The professional educational media staff is occasionally involved with teachers and supervisors in planning and producing materials for use in the instructional program.

7 8 9 The educational media specialist and his professional staff are usually involved with teachers in experimenting with educational media in the instructional program. He is also regularly involved in decision making activities relating to the integration of educational media with the curriculum and instruction.

F. Location and Accessibility of Instructional Media

1 2 3 The location of the learning resource center is such that media are not accessible to most teachers.

4 5 6 The location of the learning resource center is such that media are sometimes accessible to teachers.

7 8 9 The location of the learning resource center makes media highly accessible to all instructional units. The learning resource centers are adequately equipped to support a quality instructional program.

G. Dissemination of Media Information

1 2 3 Information concerning educational media is seldom disseminated to prospective users, and there are no definite plans or channels for such dissemination.

4 5 6 Information concerning educational media is disseminated to teachers and staff members on an occasional basis or when requested.

7 8 9 Information concerning all educational media and programs is frequently disseminated to teachers and staff members as a matter of policy.

H. Availability of Educational Media

1 2 3 The quantity of educational media is so limited that significant delays occur between requests for materials and their availability. Reservations must be made on a "first-come, first-serve" basis, and the media must be picked up by the user.

4 5 6 The quantity of educational media and the distribution system makes it possible for media to be delivered to teachers on relatively short notice.

7 8 9 There are sufficient quantities of educational media and an adequate distribution system to insure the delivery of media to teachers on any day during the week that they are requested.

I. Storage and Retrieval of Media

1 2 3 Media storage facilities are available but are inadequate for some types of educational media, and personnel have difficulty in locating and retrieving specific items.

4 5 6 The learning resource center has sufficient storage shelves and drawers for currently owned instructional materials. The retrieval system is adequate most of the time.

7 8 9 Adequate storage space, including space for future expansion, is provided in the school's learning resource center with proper humidity control where needed. The learning resource center has a master retrieval system for immediate location of all media.

J. Production of Media

1 2 3 Limited production facilities are available for teachers to produce their own materials.

4 5 6 Educational media personnel, as well as teachers, produce some educational materials, but the media staff is limited to the extent that all demands for production cannot be met.

7 8 9 Educational media personnel, as well as teachers, produce a variety of educational media not otherwise available, and meet most production demands for such media as films, filmstrips, slides, graphics, and recordings.

K. Illustrative Services

1 2 3 There is no illustrator available for use by the school faculty.

4 5 6 There are illustrative services in the school. Services are slow. There is a need for additional illustrators.

7 8 9 Sufficient illustrative services are provided so that visuals can be secured on time and in sufficient artistic quality.

L. Television Services

1 2 3 There are no television facilities in the school.

4 5 6 Black and white and some color television is available. There seems to be a lack of equipment and technical personnel for optimum utilization. Transmission to instructional areas needs to be improved.

7 8 9 Sufficient color television facilities are available and sufficient technical personnel are provided to keep the system functioning properly. Transmission to instructional areas is satisfactory.

M. Photography Services

1 2 3 There is no photography area in the school.

4 5 6 There is a photography area but it is not equipped or staffed sufficiently. There is a long delay in getting photographed materials.

7 8 9 There is a photography area sufficiently equipped and staffed. Photographic materials are satisfactory and furnished in reasonable time.

III. PHYSICAL FACILITIES FOR INDEPENDENT LEARNING AND GROUP PRESENTATIONS

A. Physical Facilities for Independent Learning

1 2 3 There is no independent learning center where study carrels, software, and hardware are available to students and faculty members.

4 5 6 There is an independent learning center with some independent study carrels, software, and hardware. The space and media are insufficient.

7 8 9 There is an adequate independent learning center where sufficient independent study carrels, software, and hardware exist. Hours of operation and sufficient staff are provided for student and faculty utilization.

B. Physical Facilities in Classrooms

1 2 3 Some classrooms are provided with physical facilities such as light control and electrical outlets, but only in special cases are provisions made for the use of a wide variety of media such as television, films, tapes, etc.

4 5 6 Most classrooms are provided with physical facilities that make possible optimum use of a wide variety of educational media.

7 8 9 All classrooms are designed and equipped with physical facilities that make possible optimum use of all types of educational media by faculty and students. Remote facilities for television transmission are provided.

IV. BUDGET AND FINANCE OF THE LEARNING RESOURCE CENTER

A. Commitment to Financing the Learning Resource Center

1 2 3 Finances for the learning resource center are inadequate to provide the services that teachers need and are prepared to use.

4 5 6 Finances for the learning resource center are sufficient to maintain the status quo, but the current media services are not sufficient to meet the instructional needs.

7 8 9 The learning resource center is financed entirely from regularly appropriated funds. The budget reflects, to some degree, long-range educational media plans and includes provisions for special media for unusual curriculum problems. The budget is prepared, presented, and defended by the director of the learning resource center in the same manner as that of any other department or division chairman.

B. Reporting Financial Needs

1 2 3 The financial needs of the learning resource center are reported directly to the administrative officer in charge of instruction only when immediate expenditures are urgently needed.

4 5 6 The financial needs of the learning resource center are regularly reported to the administrative officer in charge of instruction.

7 8 9 Regular reports reflecting the status and needs of the learning resource center, including facts about inventory, facilities, level of utilization, and effectiveness of the media program, are made to the administrative officer in charge of instruction.

C. Basis for Budget Allocations

1 2 3 The learning resource media budget is based on an arbitrary allotment of funds irrespective of need.

4 5 6 The learning resource center budget is based almost entirely on immediate needs, though some consideration is given to long-range goals.

7 8 9 The learning resource budget is based on both the immediate needs and the long-range goals of the school and reflect clear-cut policies concerning allocations, income sources, and budget practices.

PROFILE SHEET

To develop a profile image of your learning resource center program, transfer your mark from each item of the Evaluative Checklist to this sheet. Connect the marked squares by straight lines. Then turn the sheet to a horizontal position. This will pictorially demonstrate the "strengths" and "weaknesses" of your learning resource center.

		WEAK								STRONG
Section I										
	A	1	2	3	4	5	6	7	8	9
	B	1	2	3	4	5	6	7	8	9
Section II										
	A	1	2	3	4	5	6	7	8	9
	B	1	2	3	4	5	6	7	8	9
	C	1	2	3	4	5	6	7	8	9
	D	1	2	3	4	5	6	7	8	9
	E	1	2	3	4	5	6	7	8	9
	F	1	2	3	4	5	6	7	8	9
	G	1	2	3	4	5	6	7	8	9
	H	1	2	3	4	5	6	7	8	9
	I	1	2	3	4	5	6	7	8	9
	J	1	2	3	4	5	6	7	8	9
	K	1	2	3	4	5	6	7	8	9
	L	1	2	3	4	5	6	7	8	9
	M	1	2	3	4	5	6	7	8	9
Section III										
	A	1	2	3	4	5	6	7	8	9
	B	1	2	3	4	5	6	7	8	9
Section IV										
	A	1	2	3	4	5	6	7	8	9
	B	1	2	3	4	5	6	7	8	9
	C	1	2	3	4	5	6	7	8	9

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SUMMARY

Although some suggested activities and functions have been recommended, it is felt that it is inadvisable to offer specific suggestions as to how individual schools of health science should develop their learning resource centers. However, regardless of local considerations, careful thought should be given to the role that a learning resource center will be expected to perform before any specific plans concerning personnel, facilities, equipment, budget, etc., are considered.

Today, few, if any, learning resource centers can claim to be adequately performing in all areas of their responsibility. Some, however, are approaching these goals. They have made real progress toward acquiring the professional personnel, physical plant, materials, equipment, and management "know-how" necessary to enable the learning resource center to become an indispensable facet of the health sciences' educational program.